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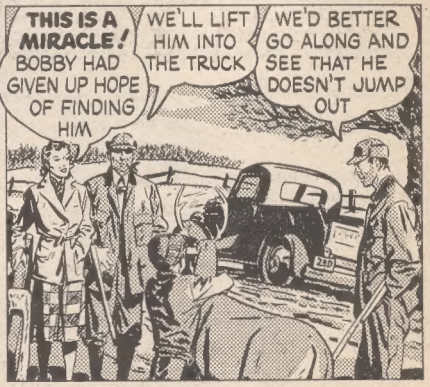
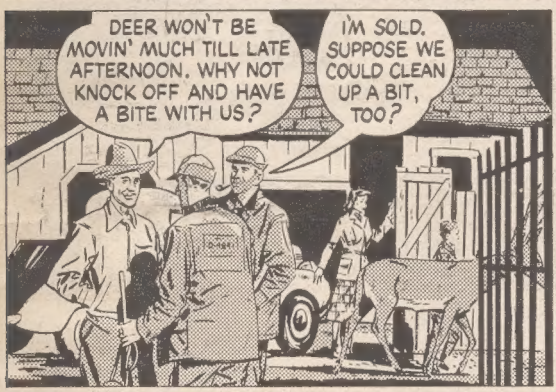

THIS IS A MIRACLE! BOBBY HAD GIVEN UP HOPE OF FINDING HIM
WE'LL LIFT HIM INTO THE TRUCK
WE'D BETTER GO ALONG AND SEE THAT HE DOESN'T JUMP OUT


DEER WON'T BE MOVIN' MUCH TILL LATE AFTERNOON. WHY NOT KNOCK OFF AND HAVE A BITE WITH US?
I'M SOLD. SUPPOSE WE COULD CLEAN UP A BIT, TOO?

WE'VE ALL THE ROOM IN THE WORLD. WHY NOT FINISH YOUR WEEK OUT HERE?
IF YOU'RE SURE WE WON'T BE CROWDING YOU
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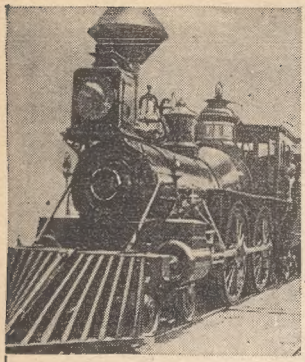

RAILROAD

MAGAZINE

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Cover: *"White Coal in the Cascades" (Milwaukee Road)*
By Herb Mott

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At glamour in the varnish class
But this old op just loves to stand,
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Riding her cars from everywhere.

I'M NOT A HOBO. I've never ridden the rods nor hit up the back doors. But do you know something? I feel like the sheet of ice on a Kansas fodder shock, the sun glare on a western water tank, the Aurora Borealis. I'm mentally as vagrant as a fence-jumping Missouri mule and as unstable as a platter of gelatin.

The nucleus of this attitude comes rolling in on old boxcars. They've all got their odor and they glide by me with: "Come on, Charlie, we're goin' places." The guy inside tugs at me, but so far I've always been able to talk him out of the idea. "You've got responsibilities," I say, "You can't be running around with them bums." But that doesn't do much good. When I ought to be sleeping I'm mentally bouncing along with those old buddies out through the sage or somewhere.

(Continued on page 8)

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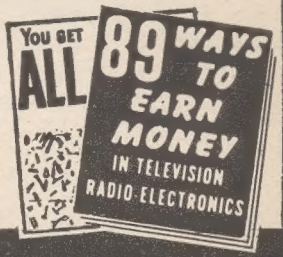

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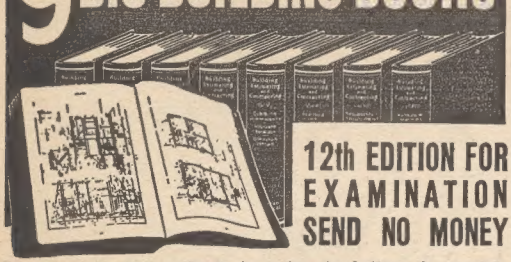

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There's just something about railroading that gives a guy a universal feeling. Sometimes I wonder if there's anything else on earth with so much ethereal appeal and yet so practical, solid and firmly based. What is there about a freight car to inspire poets? How does a dirty, blatant old hog get so deeply imbedded in our hearts? There's no change in the pitch of a sounder but they sing to us songs of love, romance, destitution and glamour. We've even got songs about disasters on the high iron that have lived for decades and, no doubt, will be handed down as classics far into the coming generations.

An old boxcar standing on a weed-grown spur is the damndest conundrum I've found. I'll admit he's wood and steel, for the most part. I'll admit he's a bum unfit for human association. I always try to keep people from seeing me when I'm hanging out with the darned hobo. He keeps up a running line about places he's been, the loads he's carried, the hundreds of hands and feet that have scaled his grab irons. Then when I'm all absorbed somebody ambles along and catches me talking to myself and I drift into a bar or two of a song like I was just humming all the time.

You go down the track on a summer evening and hear your old sounder back there in the depot clicking out a consist and—well, sometimes a musician or poet slithers into a combination of overtones that jerks your heart, but that old sounder, when the sun is setting and you're heading into an otherwise dark, lonely second, is your heart, if you'll allow a

(Continued on page 10)

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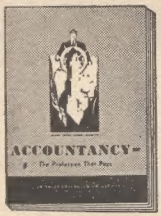

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grain of imagination. Lbr, Pipe, Mchy pull you along to farflung reaches of the nation and you glide down shiny main lines, rusty spurs, newly laid logging pikes and you hear sledges beating metallic rhythm toward resources yet to be tapped.

Aircraft, even with such phrases as "azure skies" and "cobalt blue," runs a bum second in this romance business. Seems like most dreamers went from the horse and buggy to the trains and stopped right there. I guess if they want to indulge in flights of fancy they prefer to do it on their own, and propellers are superfluous. I've seen old men and young boys standing on hillsides watching trains pass and I know doggone well there are nine or ten Muses flitting around right then. You can tell by the faraway look in their eyes. The old stock fadeouts of the silent movies, when the cowboy had done away with all evil and rode into the sunset, are about as close as we can get to satisfaction. Behind him was a lifted mortgage, deflated bad hombres and a sweetie-pie who figured he'd be back for her after he'd cleaned up 47 other counties, not to mention Mexico and the Panama Canal.

No, sir, you can't beat 'em otherwise. Railroads of America have the romance. There's something about plug hats, golden spikes and booming operators that permeates the pikes of today. Of course, it's just a mist before the eyes but it's always floating around, inspiring wild tales and throwing poets into ecstatic somersaults. You'd think the lyrics about automobiles and airplanes would have smothered the songs of the rails but up through the century, across the prairies, over the mountains, along the coasts and borders the signals flash on the sturdy tread of steel on steel and strong men jot down sentimental ballads to the God of High Iron.

This stuff floods me from the underdog angle. I sense the pull of the highbrow passenger train streaking through the night with everything running for a hole

(Continued on page 12)

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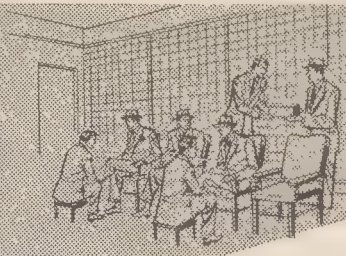

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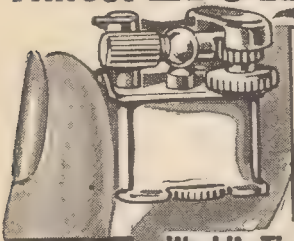

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You'll be thrilled...your friends will be amazed when you use the WORLD'S SMALLEST LIGHTER! Never before a lighter so small... yet so mechanically perfect. Gives a sure light every time you use it. Perfect for women because it has a built-in eyelet for use on charm bracelet or as a brooch. Wear it as a novel scatter pin. Men go for this tiny lighter because it takes a minimum of pocket room. Hides away in vest pocket. Creates a sensation wherever it's used. NOT A TOY! A sturdy, PRECISION-BUILT LIGHTER that will give years of service. Designed and built like a fine watch, handsomely plated in fine chrome. Uses regular fuel and flints.

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169 W. Madison Street, Chicago 2, Illinois

to let her go by, but an old box roosts right on my doorstep like a dog. The swank of the general manager's car is not lost on me and there's a lot of grace in the president's set-up. But it's the old long-tail dead freight plodding into a siding, the switchman in six inches of snow with a spangle of light bulged out from his knees, the water tanks and commissary cars that throw tingles into me.

I've heard of people counting sheep in courting sleep. They ought to try taking on one of these old extras sometime. There are a few points they will have to accustom themselves to. You count along on box cars awhile, then it's kind of disconcerting when a flat yanks your eyes down or a tank throws you abruptly into contour dimensions. Sometimes I doze off just as a badly spotted wheel pounds by, the rhythm gets to batting around in my head and the next thing I know I'm up prowling around looking for a pencil. The other night I was just about to the caboose when suddenly something flitted out from the trucks of a stock car and circled my head. It was one of those high-falutin dames the Greeks trumped up, but she whispered to me in English:

"I pursue a course that is steeped in Morse,
Where the sounders chat when the graveyard's on,
Where the wall clock cracks in the lone line shacks,
And the extras scoot through the tints of dawn."

Come one of those fine days I'm gonna be me a hobo. I'm gonna go rollin' around with them old smelly, pounding, swaying devils and I'm gonna listen to 'em and I ain't gonna say much . . . just listen and sniff and dream. I'm gonna ride on top like I dream about so much. I'm gonna lean away out from the grab irons and I'm gonna sleep inside 'em. I want to get me on an old spotted-wheeler and listen to him gripe. I'm gonna. . . "Oh, hello, Dear. I was just sitting here thinking how nice it is to be home. I was just gonna *ask* you if I could beat the rug."

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Radio-Television is growing with amazing speed. More than 2000 Radio broadcasting stations PLUS an additional 102 Television stations are now on the air. Radio sets and TV receivers are being made and sold in record breaking numbers. If you enjoy working with your hands . . . if you like to do interesting and varied work . . . if you really want to make good money and work in an industry that has a future . . . YOU BELONG IN RADIO-TELEVISION. But you MUST have good Training to "cash in" . . . the kind of training that starts you out with basic fundamentals and carries you right through every circuit and problem of Radio-Television Servicing and Repair. In a word . . . that's Sprayberry Training . . . the course backed by more than 20 years of association with the Radio-Television industry!

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★ ★ ★ Night Run ★ ★ ★

DEEP shadows claimed discarded rights
Of a fast departing sun,
The crew was called and were prepared
To take the long night run.
The massive horse of tempered steel
Was animate once more,
The rolling stock with markers placed
Was waiting on Track Four.

On threads of steel she finds her way
Along the webwork lead
By signals made with human hand
For stop, reverse, proceed.
The giant knuckles swung to place,
The rolling drivers stopped;
A boxcar shuffled restlessly,
The pins and lifters dropped.

The rubber lifelines coupled then,
The anglecocks turned straight.
The time and clearance card are checked,
The number, day and date.
"That's quite a mess," says Captain Mac,
"To tie a fellow to,
Got some empties for the mines
And reefers going through.

I think we'll make the summit, Fred,
For Nine, she's running late.
We've got some time on Seventeen.
Lookout for Number 8."
A friendly nod, a sturdy yank,
Bright rockets pierce the sky,
By family code and whistle cord,
He tells his wife goodbye.

A highball leaps toward the stars,
The fight starts with a vim,
The fireman is the master now,
The job is up to him.
The *Mogul* struggles with her load,
By gravity opposed,
She tears with fury at her grates,
They must not be exposed.

The green and tender raging fire,
The tonnage and the hill,
Have formed a unison to try
The stoker's brawn and skill.
The tallow wins a victory,
For in the night's deep gloom
Above the engine's hissing dome
Arose a lovely plume.

Over the hilltop . . . rushing down,
A shuffling, roaring tide,
Sounding a warning sharp and clear
Over the country side.
The sleepy herder, on his cot
Can hear the echoes die,
Mingled in his forming dreams
With a coyote's lonely cry.

And then a village dark and still,
They wonder if their dreams
Will be disturbed by rush and roar,
Or the whistle's piercing screams.
Down the river, across the bridge,
Over a mountain stream,
Trusting the structure's guarantee
In every vibrant beam.

Down the canyon's other side,
Lighting the rimrocks crest,
With dancing beams swung to and fro
Where eagles hide their nest;
Like a demon as if to chase
A swift elusive sheen,
In rocking, rolling wild stampede
Of flounder and careen.

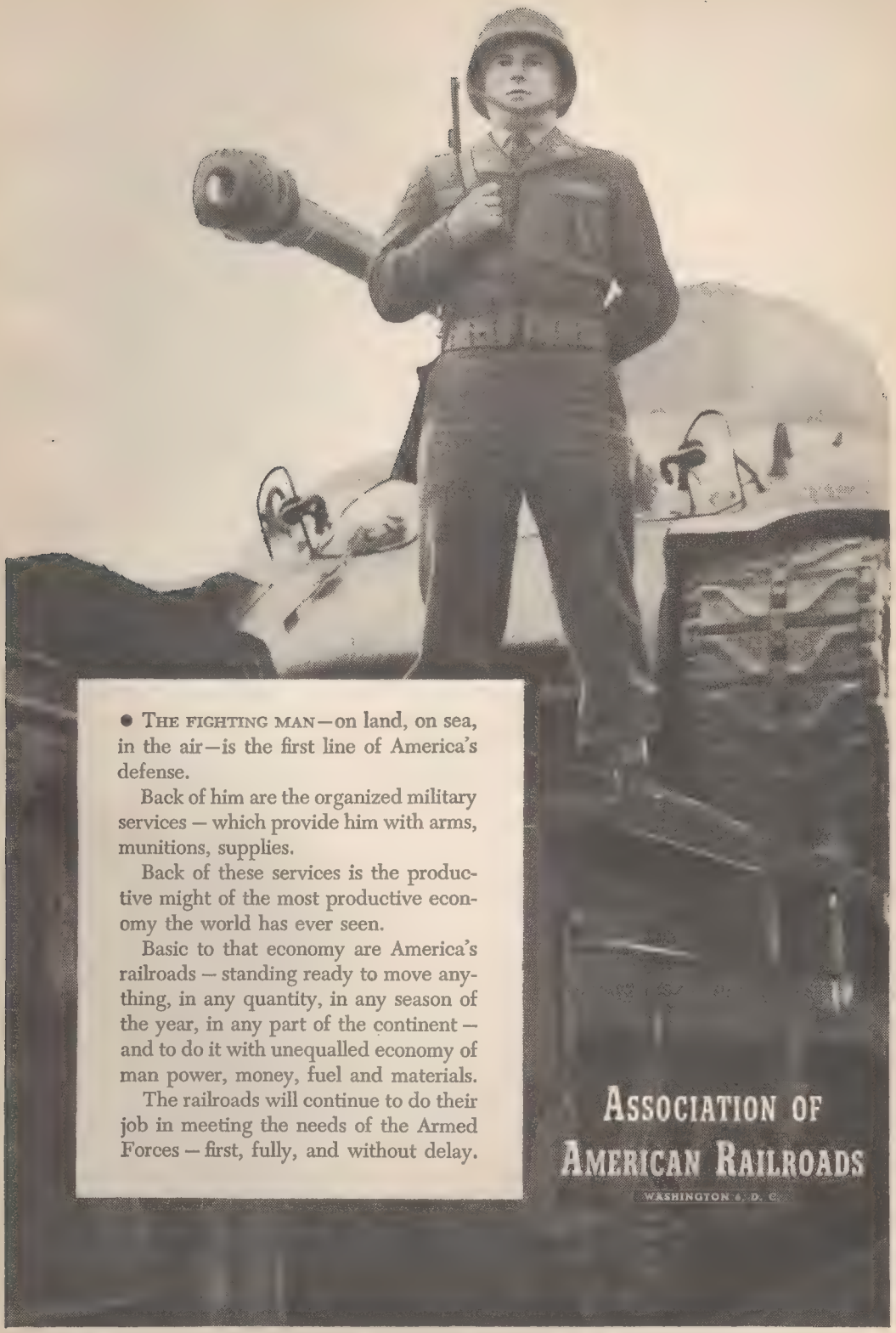
'Twas not for glory, not for joy,
Neither for fear nor fun,
Only to reach a vantage point
Ahead of Number 1.
All in to clear, the work is done.
Deep silence now prevails,
The crew waits for a clearance card,
The right to use the rails.

"Hold Fifty-Six for Number 10!"
The clicking keys command,
Depressing on their weary nerves,
Not hard to understand.
I'd state detailed vernacular,
But censors would object.
Besides the words would jeopardize
The train crew's self respect.

"O.S. Train Number 56
Arrived two-fifty-two,
Departing time is five-fourteen,
Delay not fault of crew."
Quite leisurely they jog along,
The thought of rush dispelled,
A drowsy vigil not by choice,
By circumstance compelled.

The eastern horizon grows pale,
Dark shadows slip away.
The gold and purple disappear
And there's another day.
The brakeshoes sound the final stop
And on the roundhouse track
The engine sleeps, the record reads,
"Arrived six-twenty. Mack."

—G. E. Bibee



• THE FIGHTING MAN—on land, on sea, in the air—is the first line of America's defense.

Back of him are the organized military services — which provide him with arms, munitions, supplies.

Back of these services is the productive might of the most productive economy the world has ever seen.

Basic to that economy are America's railroads — standing ready to move anything, in any quantity, in any season of the year, in any part of the continent — and to do it with unequalled economy of man power, money, fuel and materials.

The railroads will continue to do their job in meeting the needs of the Armed Forces — first, fully, and without delay.

ASSOCIATION OF AMERICAN RAILROADS

WASHINGTON 6, D. C.

All photos by James E. Boynton

Operation:

WHEN THE Western Pacific ran out of solid terra-firma on which to lay its railroad tracks at the Oakland, Calif. mole back in 1910, the road was still four miles short of its final destination, San Francisco. Separating it from this great industrial city was a stretch of slate-gray, restless salt water known as San Francisco Bay. To bridge this body of water was out of the question at that time, although later the state of California succeeded in doing the job, at the same time creating the eighth wonder of the world—the Bay Bridge.

The WP proceeded to build an ornate passenger station and a slip at the mole. Travelers disembarking from a long, tiresome transcontinental voyage were greeted by a stretch of concrete, roofed over, with a neat lunchroom and waiting rooms and the passenger slip itself. To haul these same travelers across the Bay the WP bought a passenger steamer called the *Telephone*. She'd been in service on the Columbia River up in Oregon. This boat gained the distinction of being the fastest vessel on the Bay. She could back out of the slip, make a turn and

Tidewater

GILBERT A. LATHROP

reach San Francisco long before the double-ender ferries.

When the *Telephone* was finally dismantled, her boilers were hauled to Portola, Calif. and set up as stationary power at the WP roundhouse. They are still in active service as this is written. The wheel from the pilothouse was presented to the California-Nevada Historical Society where it is preserved.

In addition to the *Telephone,* the WP had the Moore Drydock Company of Oakland build it a double-ender passenger steamer called the *Edward T. Jeffrie.* She had a steel hull and was quite a floating palace. Later she was renamed *Feather River,* and still later was sold to the Southern Pacific who promptly renamed her the *Sierra Nevada.* Like the *Telephone,* this double-ender was a speedster on the Bay.

All of which nicely took care of the passenger service across the restless stretch of water. But there were plenty of loaded box- and stockcars, gondolas, center dumps and other freighters delivered to Oakland and destined for San Francisco. These couldn't be flown

Sturdy sea-going locomotive ***Humaconna*** is dwarfed by 256-foot car float as she backs it out of Oakland pier, light, for return trip to San Francisco Yards. Famed SF-Oakland Bay Bridge stretches across the background

across. Neither could they be submerged and dragged across on the bottom. So a second slip, this one a freight, was constructed just north of the passenger slip. An outfit known as Kruse & Banks, of North Bend, Ore., built a couple of wooden carfloats. These were numbered 1 and 2. They were 266 feet long and grossed 1339 tons each. That was back in 1908, and in favor of the builders it can be said both floats are still in daily service.

TO DRAG these floats across the Bay a tug was bought. She was named after one of the WP's first officials, *Virgil G. Bogue*. She developed 750 horsepower and had a wooden hull. Unfortunately the *Virgil G. Bogue* was to come to an untimely end. She was sunk in a collision with the steamer *Point Lobos* at the entrance to San Antonio Creek (Oakland Estuary) in a dense fog. The collision was so severe the *Bogue* was almost cut in two; no casualties, however, resulted from this cornfield meet. The *Point Lobos* was known as a jinx ship. Several of her crew were killed or murdered, and she finally piled up on the rocks at Land's End, Golden Gate, the entrance to San Francisco Bay where her skeleton still rests.

The *Virgil G. Bogue* was towed to deep water and sunk so she wouldn't be a menace to navigation.

Back in Camden, N. J. in 1907, a tugboat named the *Hercules* was built. This squat, clumsy-looking vessel developed 1000 horsepower, had a speed of ten knots and a cruising range of 20 days. Since there was no Panama Canal and the final destination of the *"Herc"* was San Francisco, she sailed around the horn, where she was turned over to the WP. She is still hauling loaded carfloats across the Bay.

Tug *Humaconna* was built in Superior, Wis. in 1919. She carries two Scotch marine boilers which turn up 1250 horsepower. She's 418 gross tons, 142 feet long and was named for a Wisconsin tribe of Indians, the "Hummers." Today the *"Huma"* is the pride of the WP navy. Most of the time she tows Barge No. 3, a steel carfloat which was built by the Moore Drydock Company of Oakland in 1928. This barge is shorter that the two wooden ones, being only 258 feet long.

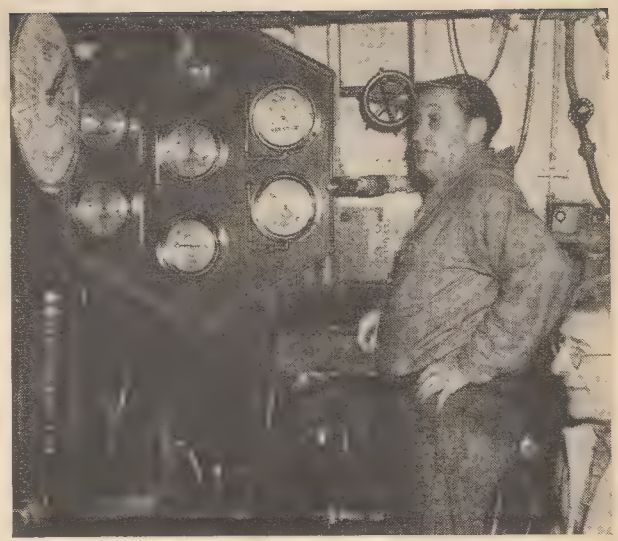
Three switch engines are used in both Oakland and San Francisco to keep the loaded barges on the move. Pulling and loading a boat is quite an interesting as well as delicate operation. Let's see just how the whole thing is done.

A mile off shore, through a slight haze we see the *Huma* boosting her steel barge through a choppy sea. She left 25 Street in San Francisco about 25 minutes ago and had a full load of assorted freight cars lashed on her carfloat. Half a mile from the slip she makes a sweeping curve and points straight in. There's a whole lot of

skill in maneuvering one of these clumsy outfits into a slip, but the captain is an old hand at the game and he eases his load into the slip and against the apron in a perfect three-point landing.

This apron raises or lowers with a powerful electric motor and heavy counterbalances. At the right moment an attendant on shore drops the apron which automatically locks in place against the barge. Two bargemen secure it with heavy tackle so both apron and barge can rise and lower with the swells.

Waiting on track No. 4 in the boat yard is a switch engine and crew. The engine is coupled to three specially built boat flats. These flatcars make it unnecessary to move the heavy locomotive onto the apron during the operation.



Above: ***Humaconna*** **is a Compound with one high and two low pressure cylinders. Author Gil Lathrop (right foreground) keeps an eye on gages with Oiler Marcaida.** ***Below:*** **Railroaders of the briny deep, Skipper Bergman on the left**

Now a deckhand is letting off handbrakes while the bargemen remove heavy hawsers from around the couplings on the cars. They remove all but a single "chock" from under the wheels on each cut. The remaining chock is removed by the engine foreman after his coupling has been made and the automatic air cut into the string. All pulling and loading is done with air coupled and operating.

The right or starboard side of the barge is usually pulled first. If the cars are all heavy loads, the cut must be doubled off. With conventional cars a bargeload consists of 13, five to each side and three in the middle. Four 36- or 40-foot cars can be squeezed on the middle or center track if necessary.

As the five cars are pulled off the starboard side, the barge and apron both

The *Ramon*, above, is probably the only juice car ferry in the U. S. Equipped with overhead catenary, float was built in Pittsburgh, Calif. in 1914 for the Oakland, Antioch and Eastern Railway. It is now in daily service between Mallard and Chipps, on San Francisco Bay

rise until by the time the last car of that cut rolls off, the barge is tilted at a sharp angle, known as a "list." Too much list might cause the barge to turn turtle, which happened a few years ago. But today the barge is loaded with mixed cars so we can pull it "straight." Next the port side is dragged off and then the center. When the switch engine backs into Track 4, she has 13 cars plus flats.

In the clear the flats are cut off and shoved against a waiting 13-car cut on Track 3. Since our engine foreman knows he had only 160 feet of room on the center track of the barge, he has carefully checked his cut for car lengths. He knows he can get three 50-foot cars on the center track without shoving one over the bumper and dropping a set of trucks into the sea. He knows he can get three 50s and two 40s on a side. But if he's forced to load that way the drawbars on the side cuts will hang out over the water when the boat leaves.

There is no hurrying in pulling or loading a boat. As each cut is shoved in to place, bargemen chock wheels, the air is sprung to emergency and the deckhand sets handbrakes. The drawbars are wreathed with hawsers.

Only 11 cars of sand or gravel can be loaded on a barge because of tonnage restrictions. Steel barge rate is 1100 tons.

HANDLING loaded barges across San Francisco Bay is not all beer and skittles. The captain is supreme commander, and can tie his tug to the slip and refuse to venture out if the weather is too rough. When a good blow sets in on the Bay, and the waves wear white caps, the barge gets to rolling so violently, that the wheels on the cars literally rise and then smash back onto the rails with tremendous noise. Several years ago a load of canned goods was blown off a barge, leaving only the trucks sitting on the rails.

It's said that one time a captain put out with a loaded barge in a fog so thick that he couldn't see his hand in front of his face. But he was sure he could find his way by listening to the foghorns that blare monotonously during such heavy weather. So he listened his way and after some 45 minutes he located a slip and slowly nosed into it. He'd done a perfect job except for the fact he was right back where he had started from, 45 minutes from nowhere.

To keep the barge secured to the tug takes a lot of stout rope. A 12-inch hawser serves as the tow line. Then there are two 10-inch stern lines, two 8-inch head lines and one 7-inch preventer line. Eight 12x14-inch timbers ten feet long serve as buffers between the tug and barge. These are worn away in ordinary weather and must be changed regularly about three times a year. But a single crossing in nasty weather will make slivers out of them.

It isn't unusual for the crews to cut the barge loose from the tug when a 50-mile gale howls down. When this is necessary, the barge drifts astern and is dragged by the single tow line.

Accompanied by Jimmy Boynton who makes a living as a WP fireman, when he's not enjoying his hobby of snapping photos of railroad subjects, this writer rode across the Bay on the tug *Humaconna*. Jimmy went along to get some pictures. A short time prior to our boat ride, Jimmy had won a rare, but doubtful distinction. It happened thus:

We'd pulled and loaded a boat and were dragging the cut down to the WP's new yards for classification and switching. Darkness had fallen. In the cab of our Diesel Jimmy munched contentedly at a plump, red apple. Suddenly he nudged me and instructed:

"Turn your lantern on a minute, will you?"

I complied. In the illumination both of us saw a neat, round wormhole in the part of the fruit Jimmy had been eating. But there was no worm.

With a grimace Jimmy threw the remaining apple out the cab window.

"That was all good apple you threw away, Jimmy," I remonstrated.

He nodded. "Yes, you're right. I guess I'm the only guy who ever ate the worm, then threw the apple away."

BUT TO get back to our boat ride. G. A. Bergman was our captain, G. E. Engstrom the mate, Harold Clifford engineer, V. Marcaida, oiler, G. M. Cabezal, fireman, Harry Ramshaw, deckhand, and Ray Niblock and Pete Omli the bargemen. Each boat crew consists of eight men. During the recent war a total of nine crews worked daily in this service, but today the force has been cut to five crews. Approximately 10,000 cars a month were transported across the Bay during the war. Today between 3,000 and 4,000 a month are handled.

Since it was a beautiful day with little wind, we had an uneventful, but thoroughly enjoyable trip. Both tugs are equipped with wireless telephone service so they can keep in touch with the yardmasters in both Oakland and San Francisco. The fuel tanks on the *Huma* hold 82,720 gallons of oil and her forward water tank carries 34.9 tons while the one aft holds 28.7 tons. At seven and a half pounds to the gallon, that's a lot of water.

Captain Bergman told us that last winter—'49 and '50—was the worst for weather he'd seen since 1942. Night after night he was forced to remain tied up because the gale outside was so bad it was dangerous to venture into it.

These sea-going railroaders—the men on WP tugs and barges—have a home on

Ashore or afloat, railroading in foul weather calls for skill and cooperation. View of Car Float No. 3 from *Humaconna's* fantail shows pilot house where crew member man's wheel to aid tugboat in keeping seaborne consist on its watery track

the waves complete with bunks, living quarters and a place to cook. They served us good stout coffee and had we been hungry would have filled us with substantial grub. Both Captain Bergman and his mate, G. E. Engstrom, were deep-sea men before going to work for the WP. Both sailed on fourmasters, learning the game the hard, dangerous way. Though they have lived and worked in the U. S. for many years, Bergman was born in Sweden, Engstrom in Norway.

The captain told us about sailing out of Boston on a fourmaster when he was just a kid. A storm blew them 400 miles north of their course. All hands, including their captain, took to the rigging. Some water casks lashed to the deck broke loose and threatened to smash in the roof of the captain's cabin. When the skipper shouted for volunteers to go below and secure the casks, Bergman and another youth volunteered. A tremendous sea came aboard. The other youth grabbed hold and started climbing, but Bergman was not so lucky. The wave picked him up and next thing he knew he was overboard. Then another wave washed him back onto his ship!

Some thrilling tales these sea-going rails can tell when they loosen their tongues.

During the war one of the barges carried several loads of cattle. On nearing 25 Street one of the animals broke out of her car. She didn't fool around getting acquainted, but made a swan dive overboard. In the icy water she took off under full steam in the general direction of San Francisco.

The propeller on the tug, turning over at 93 rpm., pulled her into it and the cow was killed. Not wanting to see good, rationed meat wasted, the crew fished her aboard and proceeded to skin and dress the carcass. Thereafter, when steaks were scarce as hen teeth, this boat crew feasted on them until they got tired of the sight of good, lean beef. Well, so the story goes . . .

Another time, an energetic switching crew at 25 Street were in a hurry to unload a boat. This one carried a solid cut of sand and gravel. Instead of doubling the cars off and keeping the barge trimmed, the crew decided to pull her straight. When the first cut came off the side the barge turned turtle, spilling the rest of her load into the Bay. It took some first-class wrecking to pick up those heavy, steel cars.

AS ON every railroad, the WP has several characters who are slightly given to exaggeration. One of them I'll call Munchausen, "Munch" for short. The other I'll call Marco Polo, Polo for short. One day a gang of us were gathered in the switch shanty. Munch told about a boat he'd loaded several months before.

He described a raging storm which howled across the Bay, which caused him to refuse to load the boat fearing the high seas. First he told the yardmaster it wasn't safe; but the ungrateful YM barked: "Load the boat!" Next Munch took it up with the terminal trainmaster. "Load the boat!" the TT shouted. Munch finally laid the whole matter before the superintendent. "Load the boat," demanded the super.

"So," Munch ended his tale, "I fished my hip boots out of my locker and put 'em on. Then I headed for the boat yard. There I found the barge with waves a foot high sweeping over it. But I'd had my instructions: I had to stand on the barge as each cut was shoved aboard. The first cut caused the barge to sink a good six inches in the water. With each succeeding cut it sank lower. When I finally finished I was standing in water up to my hips!"

Polo flicked the ashes from a cigarette. "That," he pointedly informed all of us, "ain't nothin'. Once when I was switchin' in New Orleans I had to load a boat in just such a storm. Only I didn't have hip boots. Even a divin' suit woulda done me no good. But I loaded the boat. And do ya know how I done it?" He looked from face to face as he asked the question.

A dozen heads shook negatively.

Grandeur of this Western Pacific passenger slip is no more, with ending of service which once ferried mainline passengers between Oakland and San Francisco. Tugboat, *Virgil G. Bogue,* went to Davy Jones Locker after head-on meet with Steamship *Point Lobos*

"I used a rowboat!" he said without cracking a smile.

Munch quietly faded out of the shanty.

THREE MAJOR railroads serve Oakland and San Francisco. In addition to the WP, the AT&SF must rely on barges to deliver its loads to San Francisco. The Southern Pacific, however, solved the difficulty by investing $1½ million on a bridge at Dumbarton Point. Today all save the "hottest" loads cross the Bay via this bridge. The hot loads are floated across on a single barge.

Dumbarton Bridge was constructed between 1907 and 1910. It was officially opened to traffic on September 12, 1910. No passenger trains are scheduled across it, the massive engineering miracle being used exclusively by freight trains. The Dumbarton Cutoff, of which the bridge is a key part, saves time in handling the tremendous volume of freight between the San Francisco peninsula and the East Bay area which is the gateway to the San Joaquin Valley, the East and the North.

The total length of the bridge structure, including steel spans and timber approach trestles, is 7842 feet or about a mile and a half. The west approach timber trestle is 5317 feet long, the east one 1005. The steel portion of the bridge, consisting of through steel riveted truss spans, is all double-tracked. It includes a 310-foot swing span (which provides for two 125-foot clear channel openings for navigation) with three stationary 180-foot spans on each end of the swing span.

All of the spans rest on piers of cylindrical steel shells, which enclose Oregon fir piles surrounded by concrete. The swing span pier, or pivot pier, is 40 feet in diameter. Its shell is 71 feet 5 inches in height, encasing 100 foundation piles, the longest of which extends to a distance of 123 feet below the top of railroad ties supporting track rails. The depth of water below the mean low tide at the pivot pier is 51 feet.

The swing span (center bearing) was erected on its protection work in a position at right angles to the line of the tracks. It was erected complete, ready for riveting in 14 days. The six approach spans were floated into position from falsework at Dumbarton Point. The old steamer *Thoroughfare,* which for many years had been used to ferry freight cars across San Francisco Bay, was cut in

View from *Humaconna's* pilot house as seagoing hog picks up another consist at WP's 25 Street Yards in San Francisco

two and bulkheaded to make two barges used in floating the spans.

A number of years ago Southern Pacific operated a ferry between Port Costa and Benecia. This was quite a boat, big enough to accommodate a whole passenger train, including the locomotive. On the day in question the passenger engineer and his fireman were hungry when they halted in Benecia. While a switching crew started to load the ferry, the two enginemen jumped off and headed for the lunchroom on the boat. The switch crew proceeded to shove the locomotive and part of her train on the center track. But somebody misjudged. Instead of stopping the string on the spot, the crew shoved the engine smack off the end of the boat into the Bay.

Imagine the surprise of the engine crew when they came out and found their locomotive reposing under a lot of salt water. Mare Island, owned by the U.S., was the only place around there with equipment heavy enough to lift the unfortunate locomotive out of the water. But lift her they did, and found her little the worse for the ducking.

INDUSTRIES located on the Western Pacific in San Francisco are served direct by way of 25 Street. But WP barges also go to Powell Street where the cars are turned over to the California State Belt Railroad, which handles export and import loads. The Santa Fe also uses the Powell Street slip, as well as the Alameda slip. The Alameda Belt Line serves Alameda industries, but the WP does a healthy business there also.

Several cats make their homes in the timber piles around the Oakland mole. Some years ago a foreign ship lost a pair of Manx cats. These tailless felines took up their abode at the mole and railroad employes fed them. The pair multiplied until there was quite a flock of them. But they grew so indifferent to rolling boxcars that eventually the last of them was run over.

Today only a couple of tabbies call the mole their home. Captain Bergman, who has been with the Feather River Route over 24 years, makes it a point to feed these animals every time he puts into the slip. The cats are pretty smart. If another captain is in charge of the *Huma,* not one shows his side whiskers. But when Captain Bergman is in charge, the felines know it long before the boat ties up and are waiting impatiently his arrival. This has been going on for years.

When the WP was a young, struggling railroad, only two switch engines were worked in Oakland and none in San Francisco. During those days one of the Oakland engines would gather up a few cars destined for the city and after loading them onto the barge, would ease herself onto it and be floated across the Bay. In San Francisco she would proceed to unload herself, plus the cars, do necessary switching there, and after gathering up more loads, repeat the performance.

One dark, rainy night during World War II a crew tried to load a boat which wasn't tied to the apron. The result was that a car of Christmas candy was converted into salt-water taffy.

But those were the days of inexperienced help and frenzied railroading. These days the barges cross and recross the Bay with such monotonous freedom from accidents that the jobs are practically routine. About the worst that ever happens is when a car gets shoved too far, so it is knocked off center against the boat bumper. When this happens the car is either unloaded and sent to the rip track, or if it is a rush load, taken across, unloaded and then repaired.

And the Western Pacific continues to move trainload after trainload of revenue freight across that restless stretch of salt water known as San Francisco Bay.

GEOLOGISTS estimate there are 300 billion barrels of Diesel oil trapped in Green River shale formations. Colorado firemen aren't surprised; they've been burning the shale in steam jacks for years

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Motive Power of the
Hudson River Railroad

A Photo Feature from the Collection of ROBERT C. SCHMID

ONE HUNDRED years ago this coming October, the Hudson River Railroad brought its rails into East Albany (now Rensselaer), N.Y., and a ferryboat connection with the state capitol. Much has been written about the road which began service as a horsecar line, made direct connection with the New York

(Continued on next page)

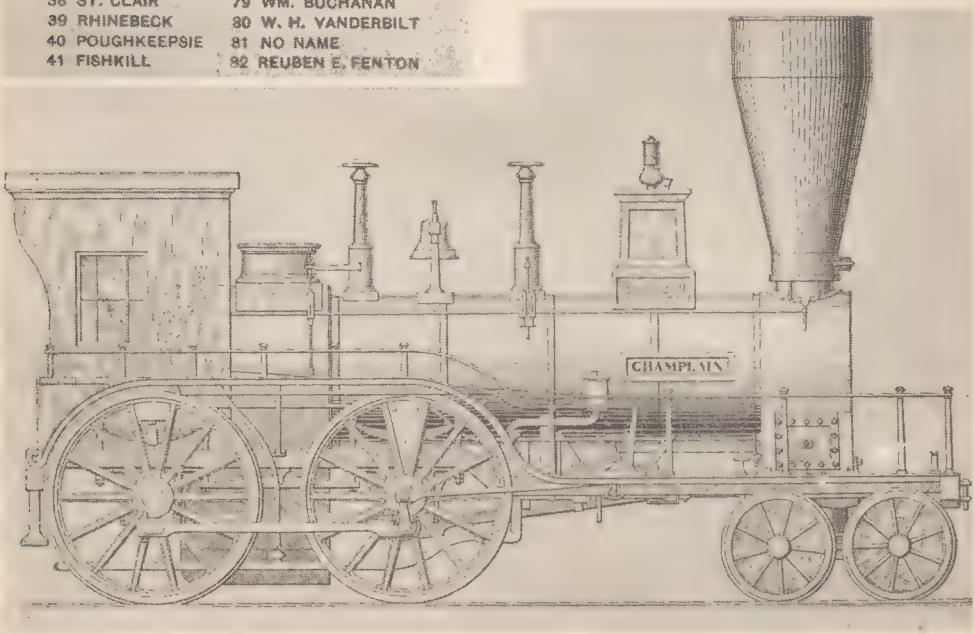
Name & Number of OLD ENGINES

Hudson River Railroad

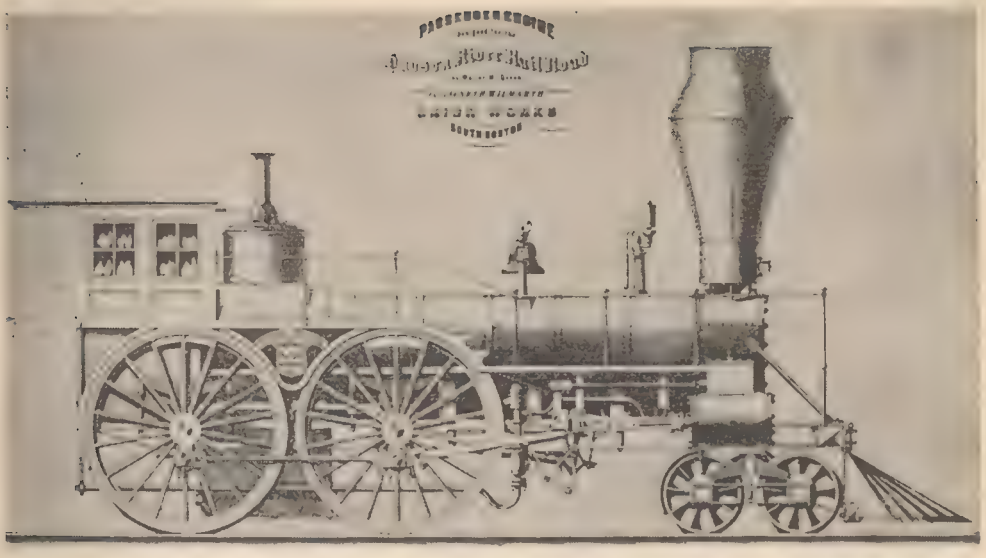
1	ERIE	42	MISSOURI
2	ATLANTIC	43	SUPERIOR
3	PACIFIC	44	BALTIC
4	ST. LAWRENCE	45	ARCTIC
5	NIAGARA	46	MICHIGAN
6	ONTARIO	47	YONKERS
7	CAYUGA	48	E. JONES
8	DANA	49	IRVINGTON
9	NEW YORK	50	TIVOLI
10	CROTON	51	STUYVESANT
11	SPUYTEN DUYVIL	52	SENECA
12	CANADA	53	A. F. SMITH
13	DUTCHESS	54	WEST POINT
14	CHIPPEWA	55	STORM KING
15	GEO. B. McCLELLAN	56	UNION
16	MERRIMAC	57	CONSTITUTION
17	PUTNAM	58	D. T. VAIL
18	WESTCHESTER	59	MONITOR
19	BUFFALO	60	JOHN DAVID WOLF
20	ROCHESTER	61	MOSES GRINNEL
21	MONTREAL	62	WINFIELD SCOTT
22	KINDERHOOK	63	WILLIAM KELLY
23	CORNELIUS OAKLEY	64	MINNESOTA
24	MATTEWAN	65	ERICSSON
25	RENSSELAER	66	IOWA
26	SARATOGA	67	ERASTUS CORNING
27	COLUMBIA	68	BROOKLYN
28	ESSEX	69	ALBANY
29	BOORMAN	70	SAMUEL SLOAN
30	PEEKSKILL	71	TROY
31	JESSIE	72	AUGUSTUS SCHELL
32	AMOSKEAG	73	C. VANDERBILT
33	YOUNG AMERICA	74	L. W. JEROME
34	UTICA	75	JOHN M. TOBIN
35	FULTON	76	JAMES H. BANKER
36	CUMBERLAND	77	H. F. CLARK
37	HURON	78	J. M. TOUCEY
38	ST. CLAIR	79	WM. BUCHANAN
39	RHINEBECK	80	W. H. VANDERBILT
40	POUGHKEEPSIE	81	NO NAME
41	FISHKILL	82	REUBEN E. FENTON

Central Railroad—when the bridge pictured on the preceding pages was completed in 1866, and by consolidation with that carrier in '69 became the eastern leg of today's great New York Central System.

Less has been said of the handsome engines which traced lean smoke ribbons up and down the east shore of the "American Rhine" with the crack trains of the Hudson River Railroad prior to 1900. From the fine print and photo collection of Robert C. Schmid, Chief Draftsman, New York Central Motive Power Department, we present a group of pictures covering outstanding engines of that era.



Below: **Inside-connected *Champlain* was delivered to the Hudson River by Taunton in 1849, made some notably fast runs, but was returned to the builder in 1852. Remodelled, she became New York & Harlem's *Seneca***



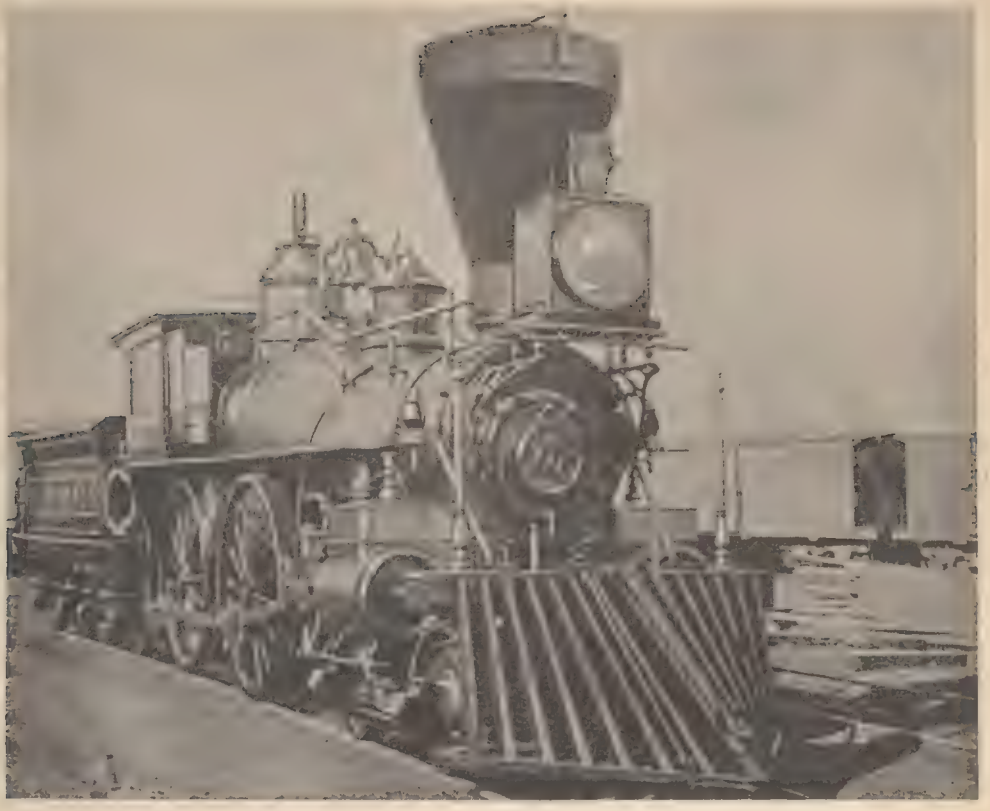
Above: Seth Wilmarth-built ***New York*** hauled special train from 31st St. to East Albany to celebrate opening of the road on Oct. 8, 1851. She had 7-foot drivers

Below: Suburban engine ***Croton.*** Like ***New York*** she was designed by Walter McQueen, who resigned as road's first Supt. of Motive Power in 1853, to begin a long and successful career with Schenectady Locomotive Works

Closely resembling *New York*. Lowell-built Columbia (1852) had 16½x22 inch cylinders

Road's first coal burner (1855) operated successfully but woodburners continued in service for 10 or 15 years

Constitution (Schenectady, 1861) pulled Lincoln inaugural train between Poughkeepsie and New York



Noteworthy speedster was Sam Sloan (No. 70) built by Danforth Cooke in 1864

Among the last ten engines built *by* or *for* the Hudson River Railroad was the 82. Photo was made after merger with New York Central

William Vanderbilt was delivered by Schenectady in 1880 and rebuilt, as illustrated here, at West Albany Shops in 1889

Hudson River Railroad brought to New York Central a noted advocate of high speeds, William Buchanan. Whether or not the 999 attained the world's speed record claimed for it, on a particularly difficult section of Hudson River track, Buchanan locomotives played a major part in making the *Empire State Express* the famous train it has been since its inception

Above: Last Buchanan *8-Wheeler* was 946, outshopped at Depew in 1899. *Below: Ten-Wheeler* left Schenectady in same year; ended her days on Putnam Division

FLIGHT INTO *Egypt*

CECIL H. GLEDHILL

IT WAS THE END of the disastrous battle of Knightsbridge in which British armour had driven deep into a cunning anti-tank trap set by that wily old desert fox, Field Marshal Rommel, and the British had lost heavily. So heavily, in fact, that the tide of Nazi victory was to sweep unchecked almost to the gates of Alexandria.

During the British 8th Army's retreat 300 miles east across the

(Continued on page 36)

western desert from Libya to El Alamein in June of 1942, a group of New Zealand rails were headed west, in the direction of Rommel's assemblage of veterans, the crack Afrika Korps.

They were train crews of the 16th and 17th Companies, N. Z. Railway Operating Group, N. Z. Engineers. Enlisted men from the N. Z. State Railways, they were mostly young, inexperienced and promoted far in excess of the positions they would have held under normal circumstances.

Their pike was from Mersa-Matruh to Tobruk, 232 miles of standard gage army constructed road. Where the terrain was relatively level, steel (75-lb. rail) was laid at the rate of 4½ miles a day.

Equipment consisted of 23 LMS 2-8-0s (British) and all the Egyptian Railways freight cars and cabooses we could lay our hands on. A few Palestine Railway cars were ferried across the Suez Canal to us occasionally and we also ran a few British War Dept. cars. The *Consolidations* were 2-cylinder, simple, superheated tender engines with narrow Belpaire-type fireboxes and were hand fired; no automatic stokers to get out of order.

Engine controls were on the left-hand side. Wheel reverse gear operated the Walschaert valve gear. The throttle was one of those old-time crank varieties: pull up to open, push down to close. Either they were not balanced or soon became defective. Several of the guys found them so hard to open that when trying to crack the throttle in starting a train they yanked too hard and tore the "lungs" out of the locomotive and ripped the coupling links off the cars.

Engine and tender were fitted with a vacuum-controlled steam brake. An Eames vacuum ejector maintained 22 inches of mercury on passenger equipment and certain cars which were designed for

Some sharpshooting Luftwaffe pilot got the 312 right in his sights, penetrating boiler, Y-pipe and steam chest with high-velocity, armor-piercing shells. *Consolidations* used on British army pike were LMS-type (British)

All photos by the author

A job on the 6-wheeled ack-ack car was plain murder; soldiers manning captured Italian guns were sitting ducks for strafing M109s. Note complete absence of brakes on dinky European-type "goods van"

perishable freight such as milk, fish, frozen meat, vegetables, etc. Vacuum equipped cars amounted to perhaps 2 percent. The remaining 98 percent had neither hand nor power brakes.

Engine cabs were not equipped with lights of any kind, a switchman's lamp (enclosed British type) being used to take periodic readings of water, steam and vacuum gages. These engines had pilots, outside buffers and center coupler consisting of a stub-hook and three forged links.

Our desert division points were spaced 90 miles apart, with the exception of two which were 70 miles apart. As no water was available between division points all locomotives towed a 5000-gallon tank-car coupled to the tender tank by a hose. Tenders were of small capacity (4000 gals.) due to being fitted for taking water on the fly by scoop from track pans.

All engines were fitted with heavy canvas blackout curtains fitting between cab roof and front of tender at top and sides. A folding steel door closed the gangway between engine and tender. Cab side-windows were painted dark blue. Not much light was discernible from the outside of the cab at night while the fireboy was baling in the "real-estate" which served for fuel. During most of the year it was oppressively hot, smothered in like that. During the hours of daylight the curtains were folded away and the all-pervading sun scorched those steel roofs, the crews completing a day's run nearly dehydrated.

At night no one had to be pressed to obey routine orders re the curtains being in place. The experience of flares floating down near your hog, tracer shells or bombs landing too near for comfort, soon impressed any green hands.

Each train consisted of 60 4-wheeled European-type boxcars and a 6-wheeled caboose, the hand brake of which was seldom adjusted and usually unserviceable.

After aircraft of the luftwaffe had shot up the boilers of 17 or 18 of the *Consolidations*, we carried an anti-aircraft gunner manning a .303 Lewis or Bren machine-gun. The gunner sat in an open car, like a small edition of a gondola. But this proved so ineffective that air gunners with combat experience were requisitioned; one was placed in the car next behind the jack and another at the rear of the train in front of the crummy.

These guys immediately wanted heavier, high velocity weapons. So .50 caliber Browning aircraft-type guns were mount-

ed and when we continued to lose engines and cars, we carried two gunners forward and two aft in armored boxcars operating multiple guns mounted in fours, and the leading car towed a barrage balloon. The idea behind the balloon was to keep enemy planes at a safe distance.

Messerschmitt 109s and 110s, Stuka divebombers and Focke-Wulf heavy bombers were the chief disturbers of the peace on the Mersa-Matruh & Tobruk Railway, causing sleepless nights and eventful days.

Couplers were commonly three long links clipped over a stub-hook which was secured to a transverse laminated spring. These draft rigging springs were the best part of the whole outfit. They withstood a great deal of punishment; upon the average we found that the amount of free slack between buffer-heads was four or five inches and in some as much as eighteen inches, with most of the strain on the rigging.

Eventually some of the jacks were armor-plated with a varying assortment of material. Some were equipped with a shell-resisting cement composition in the form of bricks. The first of these was called the "Wailing Wall" from its resemblance to the remains of the Old Jewish Temple at Jerusalem.

AT ABOUT the time armor plating was commenced our air-cover became more numerous and active enough to be of real assistance and we were not troubled by daylight M109 raids so much. In fact we were so protected and could give such a good account of ourselves that we hankered to go into action.

At our division points we ran the hogs around a wye to turn. Coal was loaded in half-ton side-dump cars, shoved up a ramp and tipped into the bunkers.

Wayside stations were staffed by N. Z. rails. Before a train entered a block section we received a certificate authorizing the train to proceed into the section. Later on, electro-magnetic instruments controlled at either end of a block by the operators released a "staff". This token had the names of the stations at either end of the block inscribed in Arabic and English. The staff provided authority for the crews to run their trains through the blocks and once issued could not be obtained from either end of the block until the one issued was replaced at one end or the other. We had no trouble with "cornfield" meets.

Fixed signals consisted of enclosed hand-lamps with a red lens and a red flag perched on an upturned drum on the left hand side of the track, just outside the

Cumbersome concrete armor did a lot to keep the *Consolidations* running back and forth between Mersa Matruh and Tobruk. British eventually had to protect cab windows, too, because dead-eye Luftwaffe pilots scored so many hits

main line switch. This was the home signal. Eight hundred yards out a hand-lamp with a yellow lens and a yellow flag secured on a gasoline drum on the left hand side of the track provided the distant or caution signal.

Upon coming within range of the distant "board" the hogger pushed down on his throttle bar, screwed the valve gear into full travel, ran in the slack and slowed them down, being prepared to stop at the arrival or home board which always remained red. If there was no green (from the station) waved across the track he remained outside. If the op' displayed a steady green (hand signal) the train could proceed, provided the skipper gave a highball (green) from the hack.

From Mersa-Matruh on the Mediterranean coast the track veered inland and twisted and turned among the eroded defiles and ravines of the escarpment, a shelf of about 500 feet elevation roughly paralleling the Mediterranean seaboard and rising abruptly from the semi desert coastal strip. Upon reaching Mohalfa the 18-mile grade to the top of the escarpment levels off and the track leads in a general direction west, on long tangents over a succession of shallow undulations, turning only to make easy curves around larger humps of the desert. Here and there a deeper depression combined with a larger hump resulted in grades extending for three or four miles; but largely the track was undulating.

The retreat appeared more obvious day by day although we were enlightened only via grapevine telegraph and rumor that things were not too good at the front.

This narrative concerns the final eight days when we were sent back to our railhead supply dumps to salvage as much equipment as could be collected and railed out. A procession of tonnage drags headed east, the westbound trains consisting largely of empties.

At that stage no one but ourselves appeared to be going west by highway or rail except the ambulance (hospital) trains.

For four days and nights we ran as far as Tobruk. When the shooting got too close we ran for 48 hours from Fort Capuzzo 70 miles to the East of Tobruk, then during the last 48 hours we slipped in and out of Mischiefa, 90 miles west of Mersa-Matruh.

Each time we landed back at Mersa we expected it would be our last run from the west.

It was something like North American roads during the seasonal rushes before

Complete concrete armor protection increased engine weight by more than 11 tons, making necessary a restriction in speed of 5 mph. on brakeless trains. In addition to Y-pipe, boiler and cab, coal gate had to be protected from deadly projectiles

the "Hog Law" became enforced. The callboy would tell us to get some grub and hit the hay as we'd be out again in two or three hours. We were pretty tired by the time we made the Mischiefa salvage dumps, being on the run continuously with but short periods of rest.

On our trips west we were always filled with apprehension as our fighter airports were now being occupied by the enemy, and air cover was noticeably absent. At any hour we were due for one of those lightning hit-and-run raids which came with such explosive swiftness from the air.

Came the morning of June 23, 1942, 0900 hours. Mischiefa. Engineer Harold Allingham, on Engine No. 9332, arrived from the east with Train No. 8. The 9332 had broken the right-hand piston head. The front cylinder cover was knocked out. Allingham had disconnected the right hand side, covered the valve-ports and limped in working one side. The 9332 was pushed around the wye, fuelled, watered and the fire cleaned. This was the last day on the M&T Railway. We were to pull our stakes and everybody head east the following day from Mersa-Matruh.

Officials decided to send the 9332 out with 30 cars. Every car that could be made to roll was to be salvaged. Nothing was to remain that could be made serviceable for the Jerries to make use of.

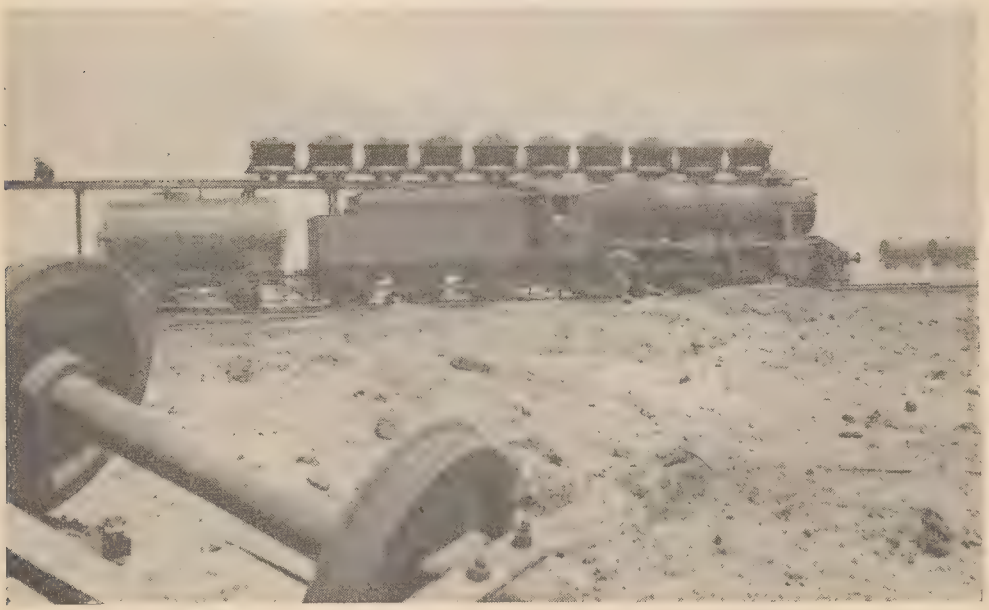
Engineer Allingham, Fireman George Cagney and Conductor Eric Solly headed for the cook shack to refuel and snatch a few hours' rest in the crew dugout before being called for a 1230 departure.

ALL CARS capable of moving were rounded up. Car-toads had fitted brasses, doped the boxes and taken the rough off scored journals. All of these cripples were to be tied on to the last train to leave. If some of the bad journals, bent axles, shrapnel scored springs and horns decided to ride the ties, they could be cut off and left while the more robust vehicles carried on. Demolition crews would wreck them and the track about them.

After midday the last six trains, made up to total 70 cars each, were to be held until after dark.

Although short of rest during the last

Business as usual at the desert coaling ramp. *Consolidations* had their fires cleaned here, too; care being taken not to extinguish them completely, as there was no wood to start a blaze from scratch



eight days no one seemed to want to sleep. None of us knew the precise situation there ahead where the battle was being fought. In twos and threes we wandered around foraging among the dumps which were soon to be discarded to the Jerry.

Engineer "Hoot" Gibson turned up at camp with a corn sack full of tobacco, chocolate, biscuits and beer. Other guys of differing tastes secured new boots, hats, jackets, overalls, .32 automatic pistols, toothpaste, soap, kerosene stoves, jackknives, bread, butter, coffee, canned milk, cans of fruit, vegetables, fish, bacon, ham and tomatoes and just a little beer.

Laden and satisfied, enough grub on deck for a month, we oiled around and took a last look over our jacks. Water OK. Fuel OK. Lubrication and running gear OK.

Station crews had packed up and official files had already been dispatched to Mersa. Skeleton crews manned the blocks. Phones and staff instruments were loosened and ready to be snatched off walls, tables or foundations.

2100 hours. We were the first crew to leave. Skipper Len Redfern, Engineer Ces Gledhill and Fireman Clarry Cadigan. Clarry had the 9322 hot. The blackout curtains were in place. Thin wisps of smoke curled from the short stacks of three hogs lined up ready to leave town. Clarry and I squatted in the sand in the cool. The engines stood out in silhouette against the afterglow in the western sky. The skipper was in the station shack. Injectors went on and off to keep the pops quiet.

The op' and con' came to our engine and explained they were unable to release a staff for the block to Wahas eight miles east. We verified no trains on the section, and started. I eased the throttle up, ran out about 20 feet of slack and got them rolling. The skipper flashed a momentary green to signify he was on deck.

We hightailed it, keeping a sharp eye peeled for the unexpected. The rule book could be flouted this night and probably it would be, so it meant that everyone had to be on his toes. I wanted to get back

Why Anzac train crews found it rough riding on battle pike: standing between buffers fireman and conductor show large amount of slack between cars due to loose, link-type couplers

"down under" after this shootin' match and live "civilized" again.

The 9322 had the drag rolling 10 mph. now and her stack was coughing as we ran the 70 cars out to hit the short grade, then the humps and sags to Wahas. I would've liked to have given her the works and found out what those British jacks could do, but anything was likely to happen that night and if I piled up, those five crews at my rear were going to be in a spot. Thirty-five miles per was the fastest I was prepared to roll those slack-coupled cars over that hastily constructed road. Even at that pace the kicks and jars from surge were enough to tear the train in two and frequently did so when a young runner, impatient at being held down to 25 mph., jerked the

hosses tail and hit the high spots. The first he knew of anything amiss was the red flashed on him by some op' who noticed the hind end missing.

Prudence demands care in running over the rough spots and there were plenty of them. Our hind men were not accustomed to quickly pacing back 18 telegraph poles as North American rails are. Working on absolute blocks with the staff to protect us, we normally had the section to ourselves. So I vamoosed but wanted to stay on the iron. It was possible that there might be trains following ours into the block sections later on.

Nearing Wahas I brought her down to about 15 mph., rolled through at 10, caught the hoop (staff), took a green from the op' and continued on for El Sut. The 9322 took up the slack again heading east, the chuckle of her exhaust and the smoke and steam drifting about two feet above the cab testifying to the ease with which the *Consolidation* handled the 70 cars.

Enroute we noted flares floating in clusters away to the south towards the El Sut bomber airport. Soon there were brilliant curtains of vari-colored shells lazily rising and floating in eddies as the anti-aircraft guns were slewed around to new angles. It was ten or twelve miles off, distance lending enchantment and providing the slow motion effect. The beacon continued its regular red flash. Previously, when passing at night from about half way between Wahas and El Sut, where the airport was visible, we often noticed the red light displaying its customary timed flash during a heavy attack and anticipated seeing the beacon blasted out of action, but it always seemed to continue. Again tonight it kept up it's usual flashing.

At El Sut we were detained for a westbound extra. We were to meet several that night. How they came to be headed west at that hour puzzled us. Some were fully laden trains. They were run around and high-tailed out of there as quickly as

A lively show outside, put on by Hitler's winged minions. The Nazis never succeeded in completely tying up the road to the Nile Delta, though Author Gledhill thinks they had every chance to do so. Photo was taken in evacuation (retreat) train between Mersa Matruh and El Daaba. Four men in center were engineers

our single track would allow. Under these circumstances engines ran with spare water-tank first, then tender leading the engine. The crummy was tied on to the rear because of the lack of automatic brakes. At speeds exceeding 35 mph. the European couplers used to snap in two at any place in the hind 20 cars on our undulating road of sags and humps.

WITH THESE westbound specials filling the sidings and occupying the main we soon lost our preliminary sprint and became tangled up with the cancellations for westbound trains and new running orders eastbound.

All of these trains had to be herded out to the Delta of the Nile at Alexandria, 253 miles from El Sut. It was single track the whole distance; staff machines controlled the blocks, some of which were 14 miles long.

At about this time the moon showed up. With this jam ahead of us the night appeared to favor the Jerry airmen. Our track and sidings were lousy with cars and engines to shoot up.

Eventually we received a clearance to Mazhud. The op' explained the situation and handed up this order: "Extra East, Eng 9332 stopped one mile twenty chains West of the Mazhud station. Train protected (flag & torpedoes). Proceed cautiously. Speed dead slow after 70-mile peg".

"That must be Harold with his crippled hog," I remarked to Clarry. "Do you think you can find that 70-mile peg Ces?" laughs the fireboy.

Landmarks were mighty scarce in that region of stone, sand, dust and patches of camel-scrub. We could see a little better now but visibility was not good enough for 35 mph., so for the first five miles we made good time but the next four were run at a reduced rate, both of us keeping an eye peeled ahead.

There was excitement in the air that night. Everyone was keyed up. With six trains departing on final runs, and the station crews pulling their stakes it appeared to us to be a critical moment. A lightning thrust, a blitz, could easily cut us off. The wehrmacht was fond of striking with fast, mobile spearheads and we seemed awfully late in getting to blazes out of it and very slow in putting western miles behind us.

When an army retreats the atmosphere seems electric. People are apt to make rash and hasty decisions. It was possible that attention was not being paid to the customary degree of discretion and prudence, so I allowed a fair margin for inaccuracy and anticipated finding the dark shadow of the caboose anywhere in the next four miles. I could pick up the mile pegs alright and if the position of the stalled train had been accurately given I knew where to expect to find it.

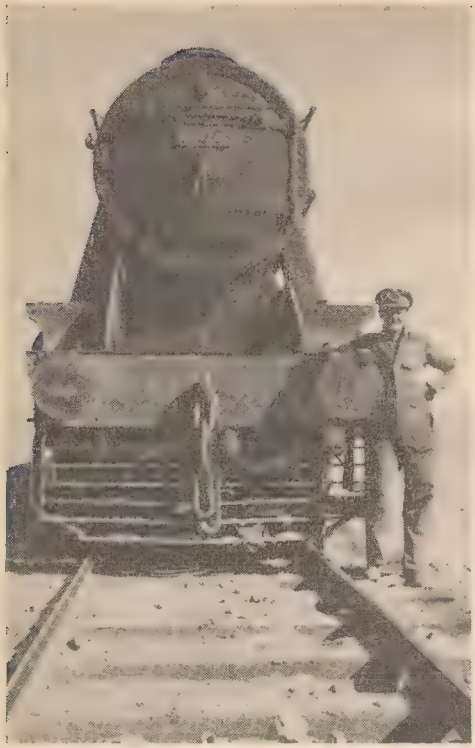
Mile pegs took on a particular significance to us while we were in the desert because of the marked absence of any outstanding physical characteristics. It became a point for each crew to memorize the locality of each mile peg.

While approaching milepost 70, Jerry dropped groups of flares again, away to our right, probably five miles off. A curtain of red, green and violet flack floated lazily into the air, making an attractive pyrotechnic display. Somebody was throwing all they had at the minions of the luftwaffe. But from that distance it resembled colored snowflakes caught in an updraught and looked anything but menacing.

We rolled slower now while all attention was focussed ahead; the stack inaudible, rods clanking lightly as the *Consolidation,* with the throttle barely open, valve-travel set at 65 percent, felt her way through the half light of a rising moon.

Eventually we sighted a yellow light waved across the track, calling us on. It was most difficult to estimate how far off the lights were on straight tracks in the desert, but taking into account the amount of movement of the waved lamp we were able to estimate fairly accurately. Stationary lights were most difficult, if not impossible.

Eric Solly climbed into the cab. He explained how Mazhud had been bombed



Author Gledhill posed with yard goat at Mischiefa during the winter of 1941-42. Soldier-railroaders found coupling links, like those on front of engine, very handy for rapid hooking up of cars

and as good fortune had it, no train was in the vicinity. Jerry must have seen a light, thinking probably it was a highway. However, he upset the place for a time and afterwards an examination revealed two dud bombs, or they may have been D.A.s (delayed action fragmentation bombs), left in a very awkward position close to the east mainline switch. The station crew threw a red on the extra, and once stopped Allingham was not able to get going again, the good side of his locomotive having stopped on center.

The skipper went back to cut us off but I told him we could do the trick without that. Allingham was ready and waiting for us, so I advised the skipper to climb aboard and hang on, because after the slack was run in to shove the crank off center, the one-lunged jack would run out the slack right smartly and sure enough it did. We ran in about twelve feet of slack and then in a second or so it ran out again and the 30 cars and that crummy literally took flight from under our front end like a shot. If the con' didn't have everything tied down it sure must have been spread over that caboose floor.

We continued rolling behind them and were signalled into the yard on the main. A westbound extra had arrived in the passing track just before Allingham took off.

We were to wait until the crippled engine ran through the black to Abana, 12½ miles west.

Having found where the D.A.s were, our crew visited with the other crew and the station operators. While waiting we could throw a feed together so I fried bacon, eggs and tomatoes in the scoop and heated cans of mixed vegetables and peas in the billy-can. Dessert was to be canned peaches with evaporated milk "from contented cows" washed down by tea or coffee served in the flack gunners' doghouse.

AT LAST the corporal op' yelled to us to get going and handed up the hoop and staff for Abana. I had already explained to Len that when we had to pass the two unexploded bombs adjacent to the track, I would crack the throttle and the tallowpot and I would make a wide detour around those booby traps. The desert at Mazhud was stratified rock, and bombs dropped from low flying aircraft frequently bounced off the surface, scaring the daylights out of train crews watching a missile bounding over the desert after them.

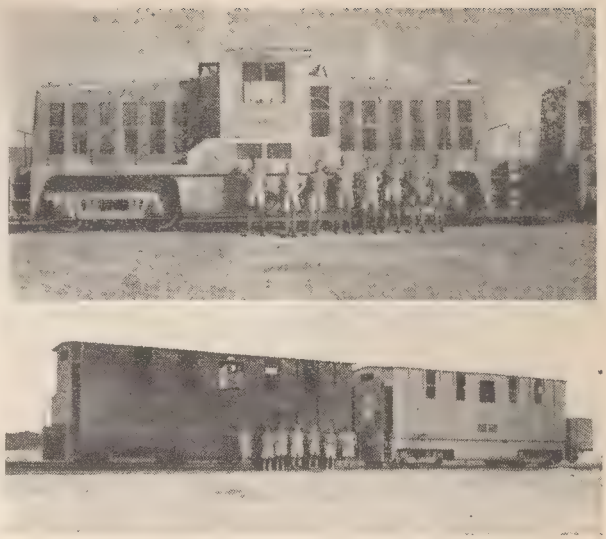
We met the hog five or six hundred yards up the track. As soon as we scrambled on we allowed Len time for the same performance. When he gave the high-sign we started to roll.

We got only a mile and a half when I happened to see a flash out of the corner of my eye and then the blue flames from twin exhausts a few hundred feet above the drag and coming towards the smoky end.

We happened to be entering a left hand

curve: that's how I noticed the flash of the blast in the first place. "Luftwaffe", I yelled to the fireboy, "right on top of us!" The leading flack men had opened up on the Jerry but I couldn't see how they are making out. Another blast came fair in the middle of the string of cars and then another to the right, about eight car lengths behind the engine on the fireman's side and soon I saw and felt that we were running with 7 or 8 cars ahead of the remainder of the train.

Now here was a jam! We wanted to stop, but being on a curve I was able to see we had parted company with the rear 60-odd cars, and to stop now would cause a wreck when the rest of the train caught up with us, and probably fire our salvaged oil, fuel and explosives.



Top: **When New Zealand railroaders were taking Diesel training at Geniefa School of Instruction, Canal Zone, Egypt, Author Gledhill was pressed into service as instructor, though he knew nothing about growlers. Photo shows student engineers lined up with 590 hp. locomotive.** ***Bottom:*** **Diesels camouflaged as boxcars were built by American firm, Whitcomb Electric Locomotive Co. of Harvey, Ill.**

To carry on with unknown numbers of attack planes overhead was much against my inclination, but having no alternative I put my head down, opened the throttle and covered a mile and a half in mighty fast time. Then I shut off, brought the front section to a halt, and throwing the brakes off I skipped out into the desert 150 yards or so where I could hear what was going on. I stopped to listen.

No planes. No cars rolling in our vicinity. After making sure the immediate threat from the air was over, the fireboy and flackmen hollered for me to let them know how things were. I told them there was no sign of planes or train and suggested to Clarry that we go look at the coupler to find out what had happened.

Upon examination we found the stub hook had a sound link on it and the three links hanging from the shackle. The links and buffers were scored, the sides of the two end cars were caved in and punched full of holes, the axle boxes were cracked, horns, springs and wheels liberally scored. Diesel fuel was running out onto the sand.

The center link of the coupler secured to the shackle of the leading car of the train had evidently broken and opened up allowing us to part company. We wouldn't know exactly what had happened unless we found the link on the front end of the rear portion. Should it have dropped off at the moment of parting it might be a mile behind the present position of the car.

Our immediate job was to return and look for the rear portion. Screwing the reverse wheel into gear, I had Clarry perched on the roof of the end car to pass signals to me when we approached the train. The skipper might be still out in the desert making himself scarce, for all I knew.

We did not have far to go. Clarry kept his lamp covered except for an occasional wave to signify he was still watching and that there was lots of room. Visibility was good now, much too good I thought. Shortly he flashed a green on me and soon I saw a green waved from the ground, the broad sweeps indicating "care" but not yet within close range. Then the

Inadequacy of firepower of train in background is starkly clear—one small captured Italian gun, which strafing German planes could safely ignore. Stuka dive bomber in foreground was brought down by heavy ack-ack batteries at Mischiefa

sweeps eased down to barely perceptible movements and knowing we were close I stopped, wanting to take a look before bumping them.

Clarry came down over the coal pile, looked at his fire and water, then followed me to the break. Upon examination it appeared that a fragment from the last bomb must have sheared the lower half of the middle link through and put a good nick into the upper portion of the link, a bit of surge or just the strain opening it out and setting us free.

The end car was stove in and liberally holed. Horns and springs had been hit, though not seriously, but one journal box had a chunk out of it almost at the lowest point. It had lost most of its oil, only the worsted packing retaining a little.

This box would need attention but our pace was not swift and it looked like plenty of stops ahead so I could splash some oil around the collar and keep the packing wet. With a 3-man crew, hotboxes are the engineer's job.

The car had aerial bombs which, minus fuses, were pretty safe except from fire. However, when a car of bombs heats up with a good oil fire under it you get well away from it. I've seen chassis and wheels and axles flung 400 yards from the track. Lighter pieces fly further of course.

Back in the middle of the drag Len said there was a direct hit on a car of 5-gallon drums of lubricating oil. Both doors were gone, the roof, sides and ends mushroomed out and so full of holes it looked like a colander. It was a mass of buckled and punctured drums, half of which were gone with the doors. The chassis, wheels and rigging were OK, though of course she must have been a bit light. However, there was no severe steaming or braking to be done as far as I could foresee, and apart from the overhang I judged she would remain on the track. But at the first opportunity we would ditch her in some siding where there was no train wanting to use the road.

THE 250-POUNDER which had landed near the rear end was off to the left-hand side and about three car-lengths ahead of the crummy. The rear ack-ack gunners were knocked out temporarily by the blast. The parlor windows were blown in and the wooden side riddled with holes. Some ugly big fragments were found in the caboose after daylight. Len escaped because the armored corner of the ack-ack car shielded the portion of the parlor that he was in at the time. He was cut a little by flying glass and still deaf, but otherwise OK.

None of the gasoline we carried was touched. Most of us found that the commodities we hauled were not so dangerous unless the gas took fire. When that poured

on the ground in between the rails and ran along under the cars of ammunition the fireworks really began to pop. When 500 or 600 tons of HE commenced to rip and blast it was surely a spectacle—from a distance—one that is permanently seared into my memory.

Being recoupled satisfactorily and with everyone on deck and in serviceable condition, we resumed our eastward flight. We arranged with Len to flash a red on us if the cripples did not follow us too good, and we proceeded, taking it quietly for the first few miles and keeping a good look out to the rear for stop signs. When the cars continued to stay on the iron I shoved the throttle over a little and as we picked up the pace, set the cut-off at about 30 percent. After a while we were rolling at 30 mph.

We see no red lights from behind and take about thirty minutes to cover the ten miles from our luftwaffe encounter to Abana.

We spot the distant and home boards and a green across the tracks and then a red, which turns out to be for a train order which reads: "Special East, Eng. 9332 stopped at West Distant Signal Zeweir at 43½ mile peg. Train protected, proceed cautiously. Speed dead slow after 44½ mile peg."

Zeweir told the op' at Abana that the train with the crippled engine had been strafed and a few cars were burning.

We tell the guys to stand clear of the mushroomed car in the middle of our train, sign for the order and get going again. I know just where to find the 45 mile peg as eighteen months earlier I had collided with 12 flatcars which had been loaded and left for me to pick up. They were heavy with 75 lb. rails and I had some explaining to do. I was employed during the construction of that particular portion of track and returning from the end of steel 40 miles west, with 112 cars behind me, met these 12 unattended cars in the depression at the 45 mile peg. I could see the cars were there alright but did not appreciate the severity of the grade or the energy embodied in 112 cars rolling at 8 miles an hour. We gave them a good wallop and damaged some bufferheads, making them unserviceable for use on long heavy trains at a time when delays were regarded seriously, with track-laying in progress. So I was very familiar with this particular 92-mile division.

Ahead of us to the north we could see a fire raging brilliantly, it looked like gas burning, probably a truck afire on the highway. At the same time an ack-ack curtain was floating up southeast, many miles off.

The moon was now well above the atmospheric haze and much too brilliant for our continued good health. But our good fortune held and the 110s left us alone. We could hear only the rumble of the train and the blow of the ejector and escaping steam. But a crew on deck usually heard nothing of aerial activity until they were the target, and projectiles through the boiler or bomb blasts enlightened them.

Ahead to our right in the indeterminate distance there was a fire of some sort. We had noticed it more brilliantly before and it appeared to be subsiding now. It might have been a small fire a short distance ahead or a larger fire much farther off, you couldn't tell. I warned Clarry to keep a sharp eye peeled ahead but he explained that half the time he couldn't see much anyway, after throwing on a fire. He couldn't even see the steam or water with the assistance of the pale glow from the switchman's lamp.

Although the track to Zeweir was not straight, each curve we negotiated brought the glare of the fire to approximately our line of flight and soon I presumed it must be the 9332 and the 30 cars.

As luck would have it the armored engine would have to stop again with her crank on dead center. Eric called out, "Here's that freight jack again", and Clarry chorused, "There's that crummy again," as he waved to us to come ahead.

A marauding Jerry plane had had a lash at the boiler of the 9332 but her armor-plate had stopped the shells. The Jerry came back again and again although

the flack gunners (only one car on this train) engaged him. The tender tank was full of holes but Harold had plugged them upon his return from his 440 yard sprint into the desert. The wood (obtained from packing crates in one of the cars) swelled nicely in the water.

When the plane failed to penetrate the boiler the Jerry strafed the cars of gas, oil and munitions and a car of small-arms ammunition had exploded. The flack men swore they got in several direct hits but the Messerschmitt flapped off. Anyway, when they were hit we never saw them come down unless it was in flames. Many crashed two or three miles off the track. One door of the ammunition car had gone and the other was hanging by one end; the roof was full of holes and the car was bulging like a balloon. Some wooden cases of .303 ammunition were smouldering and the whole interior was still pretty warm and reeked of cordite.

THE ENGINEER was afraid that as soon as they commenced travelling, the sand they had thrown on the smouldering cases would sift through the holes in the floor, and the breeze fanning through the same holes set the woodwork aflame again. So we primed our injector and with our 2-gallon ration buckets, poured wet sand into and over the tangled mass of gear in the car.

We couldn't remain there all night. It was getting near to daybreak so it was decided to make a start. Harold told me to shove as soon as I was ready.

The 12 feet or so of slack was run in again, the crank moved away from the center and off leaped the crummy like a jet plane.

After the hack was "airborne" we rolled quietly along after them as far as the home board, where we received a green waved across the track to bring us into the station limits, the special having continued through without stopping.

The op' advised us of a crippled boxcar running behind the hack of No. 3. It had melted a journal off and gone down on the ties and been dragged that way about eight miles. The skipper had put out a red light, but had been unable to catch the attention of the hogger or the fireboy.

The op' handed us this order; "Speed of all trains Bir Afarit to boxcar on left side of track at 23 mile peg must not exceed 5 mph."

The flanges had chewed off fish-plate bolts, split some of the ties and the car had threatened to drag the crummy off with it. Later on the conductor said that it was a hectic journey till finally the front end saw the red. Then they were 45 minutes in getting to the highway and obtaining the use of an army tank and some wire cable to haul the remains of the car clear of the right-of-way. It was a wonder, under the prevailing circumstances, that a tank of sufficient power and in running condition could be found.

Meanwhile we had to wait for the 9332 to run the 14 miles to Mohalfa, at the top of the escarpment. Anticipating poor adhesive conditions due to oil-slick track on the descending escarpment grade from Mohalfa to Mersa-Matruh, Clarry and I foraged around in the hollows between the camel scrub for a grade of sand coarse enough to help the *Consolidation* to maintain her retarding capacity. We thought we were optimistic looking so far ahead, but anyhow there was time to spare at Bir Afarit. Sand boxes fitted on these engines had never been filled since arrival in Egypt and no one ever expected to need seashore, as very often a light breeze would keep a sprinkle of sand sifting over the tracks night and day. The sand boxes on the 9322 contained a little unused sand of good quality. This we laboriously extracted and mixed with the poorer sand of the locality which could be gathered quite easily.

After the sand precaution we partook of another daintily prepared meal produced by the skipper while we had been loading the seashore. Len had the bread sliced and buttered, waiting for us to turn up for the canned boneless ham, tomatoes, hardboiled eggs, asparagus tips, stuffed olives and milk (from contented cows). Coffee was served in the flack gunners

dog-house again as it was a good deal cooler there and we could keep an ear on the air traffic.

Pearl grey dawn was at hand and if our luck held some of our fighter planes would come over and patrol the escape routes. We had no idea how fast the wehrmacht was advancing. An armored column could show up at any time in one of those swift enveloping movements. We had no wish to spend years of our young lives behind the barbed wire of Hitler's stalags.

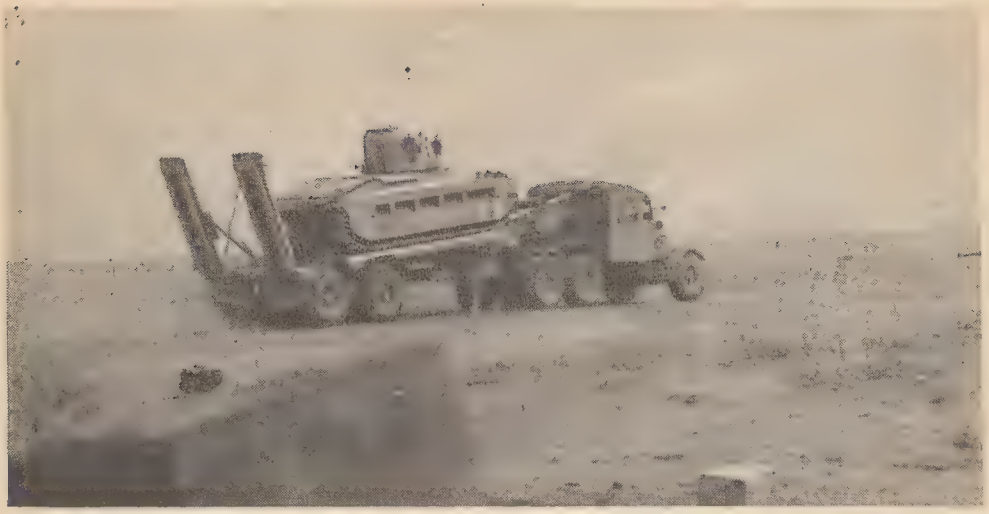
So far our progress east had averaged only 7 mph. During the hours of daylight we did not know what to expect from the luftwaffe as it was logical that our planes would concentrate primarily on the battle areas, relegating us to third or fourth place in priority.

Eternal vigilance is the price of safety, so runs the railroad exhortation and that is just how we were intending to be that day. We expected the Jerry to follow up his advantage by harrying the retreat with all possible vigor to create the maximum of confusion and disruption.

However, we eventually received a clear block at 0710 hours and commenced our tedious 80 minutes of feeling our way to that danged boxcar.

Our fire by now had become very dirty. Fine powdery grey ash choked the grate from end to end. There were no rocking grates or dump section, the only way to clean the fire was to fish a firebar out with the clinker hook, if you were lucky enough to find one through eleven or twelve inches of ash under six inches of fire. We were endeavouring to generate thermal units with Indian coal, a carbonaceous mineral which is 66⅔ percent shale. Waiting so long made the fire worse as ash accumulated and the boiler and arch cooled, and having a hermetically sealed grate we found it most difficult to get the hog hot again. It was astonishing to us to see how those engines steamed with such excessively dirty grates. There were times when we were able to carry on with the accumulation of ash so deep in the firebox that it choked the front half of the brick-arch and was falling out of the fire-

In the picture the boxcar weighed about half as much as it did when it was built, which even then was not enough to make it stay on the rails under wartime conditions. On curves, when hooked up too close to the engine, they tended to jump off the iron as slack was yanked out



A disabled tank is hauled away for repairs on highway paralleling army-built railroad. Ingenious Anzacs frequently found tanks useful for hauling crippled rolling stock off rails where there were no sidings

box door, and that is not an exaggeration.

We highballed out of Bir Afarit with about 160 pounds of steam and with the draft wide open. After 45 minutes Clarry had the pointer around to 210. Meanwhile we had covered a few miles. After the first ten minutes or so I climbed out onto the pilot to take a look at the condition of the track. It was not as bad as I had anticipated, so from there on we maintained 10 mph., arriving without incident at the top of the escarpment at Mohalfa at 0850 hours.

THE SWITCHMAN cut out our mushroomed car of oil drums, and carloaders picked out a solitary drum which was intact. Stones and sand were shoved under the wheels of the cripple to hold it there.

At 0900 Len highballs us out of it for Sequifa, 9½ miles down the grade where we have an order to meet a light engine which is coming up to get a string of flats loaded with crippled automobiles, tanks, assorted guns, weapon carriers and army equipment from the car park at Mohalfa.

The highway from Siwa Oasis reaches the edge of the escarpment at Mohalfa and plenty of crippled vehicles converged at that point.

The track out of Mohalfa, east, descends gradually at first, but after 3½ miles the grade falls at a steeper pitch, twisting and turning through deep cuts and over high fills around the side of the eroded walls of the escarpment.

For a week now trains had been rolling day and night with salvaged materials. Hastily loaded drums of various kinds of liquid fuel and lubricating oils had been buckled and dented badly, in some cases causing a certain amount of leakage. Most of the drips were absorbed by the sand and dust but a portion found its way onto the car wheels and the track itself. Flat switching had hammered the daylights out of these unretarded cars. Every floor seam was sprung and they leaked everywhere. The result was a rail which was unusually slick for that particularly arid locality. To keep the jacks on their feet on the upgrade we always had a helper 2-8-0 with its shoulder to the crummy. One engine was always holding to the rail should the other lose its footing.

Descending was a different proposition. We came down holding back the forward surge of the cars with a single engine. Day by day as the number of salvage trains passed over the track the rails became oilier, particularly where the cars canted

to the ground and rails. They say it takes more power to stop a train than to start it. I thought of that and having 70 cars of loads instead of 60 empties I thought there was a definite risk in negotiating the escarpment grade. I was mighty pleased now to have the sand boxes filled with an assortment of genuine seashore and desert mixture.

There was the light engine to meet at Sequiefa and as we nosed over the top the jack had them rolling at 10 to 12 miles an hour. I had tried out the sanders prior to this but now that we had a grade to contend with and 1200 to 1300 tons exerting their kinetic energy I tried out the seashore again and found that I needed only a light dusting to keep the wheels from slipping.

As it turned out, we had to wait 35 minutes for the light engine.

Surprisingly we felt and saw nothing of the luftwaffe. All the way down from Bir Afarit the whole crew were anticipating a warmer continuation of the night's proceedings. We were tired of scanning the skies but still we kept a watchful eye—just in case Jerry should pop up.

The light engine arrived at 1012 hours, the staff was hurried to the machine and locked in, another withdrawn for the section Sequiefa-Mersa-Matruh and we headed out and down the eight-mile descending grade which continued right into the yard itself.

The right-of-way turned from the shoulder of the escarpment at Sequiefa and traversed a series of sandy, rounded, undulating hills sloping gradually down to the Mediterranean coast line. The grade continued descending at much the same rate but the curves were less severe. Still it was necessary to hold them down to 10 or 12 mph.

Our outfit was to break camp that afternoon and I wanted to be there in order to pack my personal belongings, as I had cameras, diaries and honeyed letters to stow carefully away. We were to head east the same afternoon, the British Railway Operating Group taking us as far as El Daaba, which was 80 miles away and the end of their west division.

However the 9322 kept her stern against the leading cars and held them down to 12 mph. or so and we were able to reduce to 5 upon entering the yard at Mersa at the expense of smoking hot and paint-blistered tires.

That same afternoon we fled east, most of us in boxcars this time. Our overall speed was just about as swift as the trip from Mischiefa, and as eventful. During the night, by flares and moonlight old Jerry really did concentrate on the rusties, but guardian angels must have ridden that train as near misses seemed to be our lot, while behind us he was more lethal. We were destined to live, apparently, to provide a target for another day.

A couple of Anzac switchmen and a fireman at Mischiefa with all that was left of a boxcar after a bomb exploded inside it. Little tank cars like those in right background were used for hauling gasoline and precious extra water for engines

Lucius Beebe

Whether the fuel be oil or coal, poor combustion spells waste—and angry protests from trackside dwellers

Donald H. Furler

Light of the Lantern

BLACK SMOKE

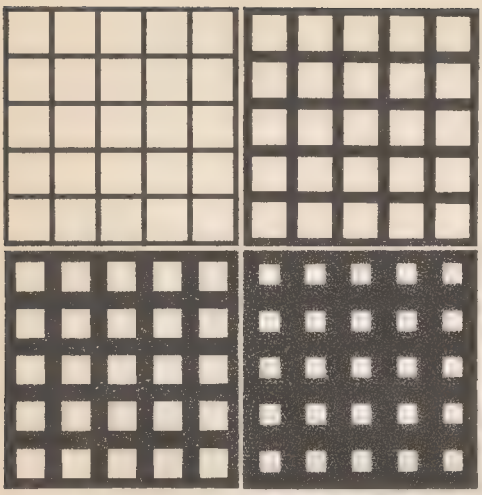
IRONICALLY, many mechanical developments which have brought far-reaching benefits to the railroad industry had to be shoved down its figurative throat by outside agencies.

Among these are the various smoke abatement devices. From the very beginning there were complaints about black eruptions from locomotive stacks. As early as 1828 the Liverpool & Manchester demanded that the engines tested on its tracks should "consume" their own smoke.

True, as the years went on and the tempo of the industrial revolution quickened, there came a time when competitive manufacturing cities took pride in the sooty canopies which hung above their chimneys. But the day was coming when an enlightened public would realize that machinery and a clear sky were not incompatible.

In an attempt to improve combustion or, to put it more practically, to cut costs by obtaining a maximum amount of heat from a given amount of fuel, enigneers had already taken the first step toward producing an unobjectionable exhaust.

First they had found that by lengthening the distance which flames had to travel in the firebox they insured more complete



Ringlemann's scale, one-third actual size. Hung 50 feet from observer, charts appear gray in tone, with densities of 20, 40, 60, and 80 percent. Matched against engine exhaust, they give accurate smoke rating

burning of fuel particles and gases. This was done by placing a baffle or fire arch in a sloping position above the grates, around which the flames had to travel to reach the boiler tubes.

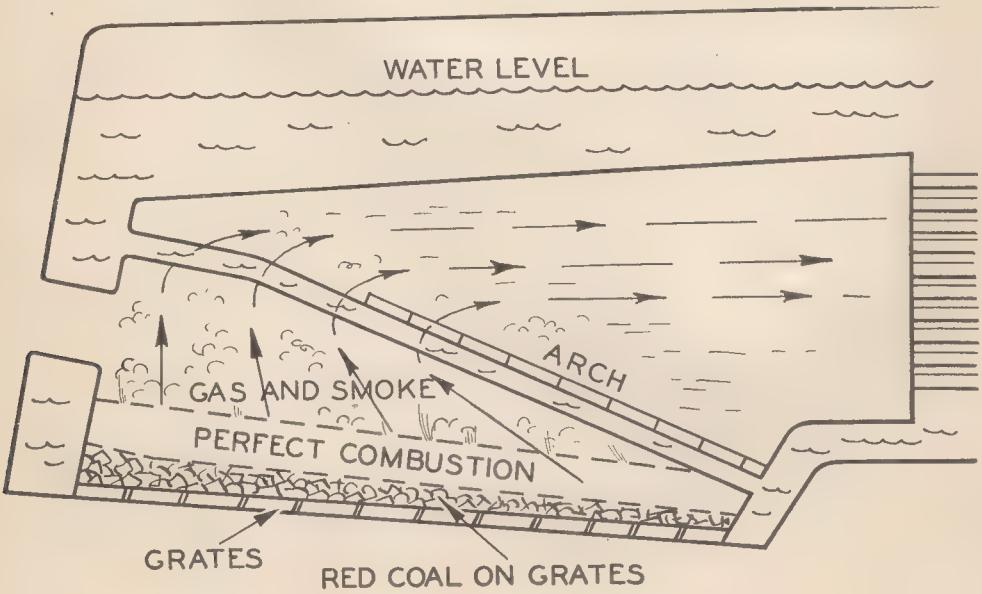
On early locomotives, with their narrow fireboxes, no arch tubes were needed to support the arch. But as boilers grew, large tubes were applied and numerous rows of bricks installed. The expense of such application was more than justified.

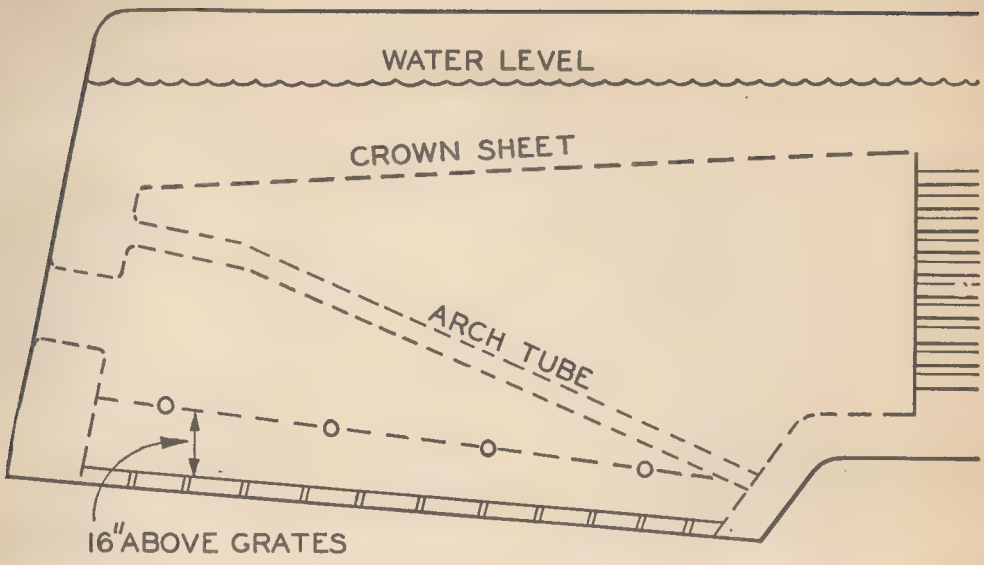
To allow for further burning of the gases, an open section called a combustion chamber was provided ahead of the firebox. Soot blowers were invented to clear the flues. All of these devices helped to reduce black smoke. Yet the overall picture was far from good and complaints were numerous, particularly from civic groups in congested areas.

Back in 1888 a professor at *l'Institute Nationale* in Paris named Maximilian Ringlemann designed a chart which made it possible to determine varying densities of smoke. An American engineer, upon learning of the Frenchman's accomplishment, introduced the screen here in the States and soon afterward the Massachusetts Legislature adopted it in formulating laws to reduce the smoke nuisance in the metropolitan area of Boston. Our first illustration shows the extremely simple, yet effective, nature of the charts.

Still it remained for the electric locomotive and, more recently, the Diesel-electric to touch off a determined cam-

Schematic drawing of firebox cross-section, showing stratification of heat from fixed carbon; free carbon and hydrogen (gas) and unblended free carbon and water (smoke)





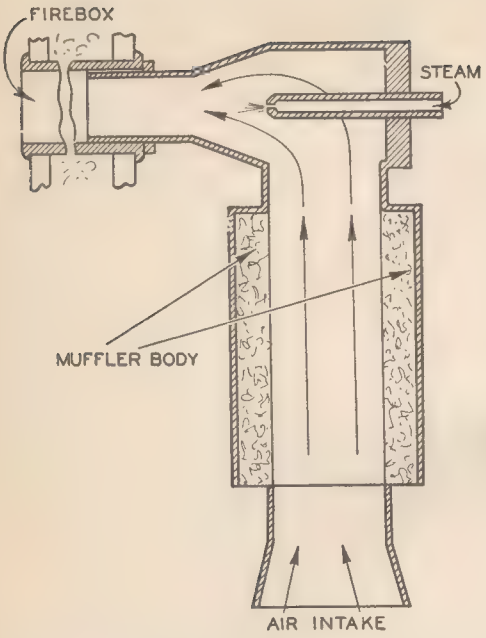
Best results are obtained when jet openings are located 16 inches above grates

paign against soot—and cinder-blackened stack effusions. Realizing that the day was gone when a railroad could simply point an accusing finger at the fire-tender at the enginehouse, or the tallowpot on the road, our railroads, with the assistance of Bituminous Coal Research, Inc., went to work upon the problem in earnest, with results which have not only silenced most criticism, but are resulting in substantial savings in fuel costs by the carriers themselves.

TO UNDERSTAND the subject of combustion as applied to BCR's work in this field, we must dip into certain fundamentals of chemistry. We know that matter, whether it be liquid, solid, or gaseous, is composed of certain basic elements. These elements, themselves, may take the form of solids, like gold or silver, or they may be gases like hydrogen or oxygen. The mixing of elements to produce matter of a different sort may occur either *mechanically* or *chemically*. Air, for example, is what may be called the product of a mechanical blending of elements; it is a compound, in which each of two elements—oxygen and nitrogen—retains its original identity. Water, on the other hand, is a chemical mix, or combining of elements. Here, the union of two gases—one part oxygen and two parts hydrogen—produces a liquid.

In discussing combustion we are dealing with the subject of *chemical* unions. When we say that we "burn" coal, we are guilty of an over-simplification of fact, by the chemist's standards. Actually we are blending oxygen with the two elements of which this fuel is mainly composed—hydrogen and carbon. This blending can begin only after the application of heat for ignition, after which the elements attract each other with great energy. The result of this particular chemical union is that the heat generated during the process is sufficient to maintain an igniting temperature.

Average bituminous coal contains about 80 percent carbon, 5 percent hydrogen and 15 percent impurities, such as ash and sulphur. When the coal is heated to about 1200 degrees, the 5 percent of hydrogen unites with three times its weight of carbon, thus converting 20 percent of the coal into gas. This is the volatile matter which "burns" with a fierce flame above the remaining carbon on the grates. The fixed carbon, or coke, as the latter is called, "burns" without



Jets, nick-named "bazookas," project high-velocity air over fire; are jacketed in mufflers to prevent irritating whistle

flame, but with a red or a white glow.

In considering black smoke, we are not greatly interested in the fixed carbon. Assuming that the ashpan and grates are properly designed, so that an adequate but not excessive amount of air passes through the fire bed, it gives off a satisfactory amount of heat, while retaining a solid form.

Rather, we are concerned with the gases which are set free and the manner in which the chemical change takes place.

To obtain perfect combustion, a mixture of two atoms of oxygen to one of carbon is required. When there is not enough oxygen, the carbon in the flame will smoke and escape in the form of soot. Offhand it would seem a simple matter to obtain the CO_2 ratio. However, in the case of the locomotive firebox, there are too many variables involved. The coal, for example, would have to be graded to one exact size and distributed over the grates in such a way that the fire bed was of equal density throughout its length and breadth. Even then clinkers would quickly upset this balance and as ashpans began to fill up the flow of air would be further restricted.

Then why not admit additional air through a damper in the firedoor? For the simple reason that a rush of cold air from this point would not blend chemically with the free carbon. Instead, it would blanket it, igniting only the top surface and rushing on to the tubes, cooling the metal with damaging results. *About the only good feature of opening a firedoor is to stop the pop from howling and wasting water and steam.*

IN HIS CATECHISM of the Locomotive, Matthias N. Forney recognized and discussed all of these problems as early as 1887. He recommended a "light fire", but bemoaned the fact that to maintain it, the firedoor had to be opened continually, with a damaging, cooling effect.

Doubtless the automatic stoker of our day would have seemed the answer to his dilemma, for here is a device which can spread coal thinly and evenly while the firedoor remains closed. Nevertheless, any railroad man can tell you that this stoker produces more black smoke than the hand bomber ever spumed.

This brings us to the subject of air velocity in the firebox. We have already mentioned the fact that by lengthening the travel of the flames by means of a brick arch and combustion chamber we give the gases a better chance to ignite. Yet the time in which the chemical blending must take place is very short, for the air which enters the firebox from below at a speed of around 15 miles an hour is traveling at around 140 mph. by the time it rounds the back edge of the arch.

The atomizing of fuel into this hurricane naturally results in huge quantities of unconsumed particles being whipped into the tubes and out the stack. With it goes a certain amount of vapor resulting from the blending of the oxygen with free hydrogen.

Again reverting to Forney's discussion of combustion we find him recommending the practice of placing small air intakes

or "jets" above the fire to provide additional oxygen for combustion of the gases, but warning that they should not exceed one-half inch in diameter lest they drop the temperature too greatly. Strangely, this practice, which enjoyed some popularity even at that early date, was all but overlooked in a later era. Probably the lack of scientific study concerning the proper location of the openings led to the discontinuance of the use of such overdraft ports. For as Forney himself pointed out, large currents of air, injected into the gases, tended to rush through them without mixing, like a swift, muddy steam disgorging into clear water.

When Bituminous Coal Research tackled the problem of smoke abatement, these factors were all considered. By a system of trial and error it was found that the air was most effective in breaking up normal stratification when it was introduced into the firebox at a height of 16 inches above the fire. To insure proper blending the overfire jets were placed in staggered locations along the two water legs, creating a maximum blending action throughout the area occupied by the gases. The number of jets and the size of the steam openings must be determined by the size of the firebox and the amount of coal to be consumed.

In structure each jet is an atomizer with a funnel-like air intake at its lower end and a steam nozzle set at right angles to the column at its top. The steam flow may be in the cab, or through a direct connection with the blower so that both operations may be accomplished at the same time. To avoid a deafening whistle when the steam draws up air and forces it into the firebox, the column is surrounded by a muffler body packed with stonefelt blanketing.

This overfire jet has accomplished wonders. It uses very little steam as many of the jet openings are only 1/64 of an inch in diameter. Maintenance costs, after installation, are negligible and, when operated according to instructions, smoke density may be held to better than required limits.

Top view of application. Jets are staggered to produce even blanket of air

INFORMATION BOOTH

Each month the Lantern Department prints answers to rail questions of general interest, submitted by our readers. We do not send replies by mail.

Q. *PRINT a brief sketch of the new narrow-gage railroad nearing completion in Liberia, Africa.*

A. Liberia is getting its first railroad, a narrow-gage line through the jungle from Monrovia, the capital on Africa's west coast to the Bomi Hills, a rich iron-ore deposit, forty-five miles northward. The pure iron content is said to average 68.9 percent, as compared with 51-53 percent for the Mesabi range. The Liberia Mining Company is in charge of constructing the two-million-dollar railroad. Subsi-

(Continued on page 59)

Ambling over the asphalt to a new job

Road wheels up, ready to "crab" freight

SWITCHER WITH A TWO-WAY STRETCH

A new type of rail-highway switcher has just been placed on the market by the Whiting Corporation for use in and about industrial plants. When road wheels are raised, the 3-ton switcher can take off, crab fashion, down the rails, hauling as many as 4 freight cars at speeds of from 1.5 to 9 mph

Trackmobile's weight is increased, for better adhesion, by raising coupling on tractor to support part of car weight

dized by two loans of $4 million from the United States Export-Import Bank and $1 million from Republic Steel, the mining company was organized in 1946 by Lansdell K. Christie of New York. The Liberian Government granted Mr. Christie a mining concession to exploit mineral deposits within a forty-mile radius of the central iron ore body at Bomi Hills. Republic Steel will buy at least half of the Bomi Hills ore for its mills in Alabama, New York and Ohio. Geologists have so far proved the presence of thirty-million tons of high-grade ore in the Bomi Hills. A one million ton annual output is anticipated by 1951.

The Liberian roadbed inclines gradually from sea level at Monrovia to 170 feet altitude at Bomi Hills. Laying of track began early last year. The route traverses dense jungle country, spans two rivers with steel bridges, and crosses swamp areas with eighteen reinforced concrete bridges. Among other construction difficulties, the railroad builders have had to contend with a ground termite that can eat its way through ordinary crossties in a matter of days. Liberian Mining Company had to fell 7000 hardwood trees, such as ironwood and black gum, to make ties that would last. The narrow-gage track will accommodate ten-car trains at a top speed of thirty-five miles-per-hour. One or two passenger cars may be added to the ore trains, once the line gets into smooth operation. Running time will be approximately two hours for the forty-five mile distance, and the first shipment of iron ore will probably be hauled over the line by March, 1951.

HERE'S MORE light on the origin of the term *Mother Hubbard*. Most people believe it refers to the cab location. But the *Locomotive Engineer* of 1890, describing the Scranton Shops of the DL&W, indicates otherwise:

"These big fireboxes have crown bars over the center and crow-feet and straight stays on the sides, many of the old boilers being changed by cutting off the water leg at the side seam, and putting the *Mother Hubbard* on there." Thus the reference is actually to the wide fireboxes, not the cabs.

Q. *Where is the longest stretch of tangent trackage on the Chicago & North Western?*

A. Between Vayland and Blunt, South Dakota, is a perfectly straight stretch of fifty-four miles. This is on the line between Elroy, Wis. and Rapid City, S. D.

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Q. *How many streamlined trains are there in the United States at the present time.*

A. At the end of 1950, latest record that we have, there were 154 streamliners, made up of 319 sets of equipment. These trains run a total of 212,401 miles every day of the week.

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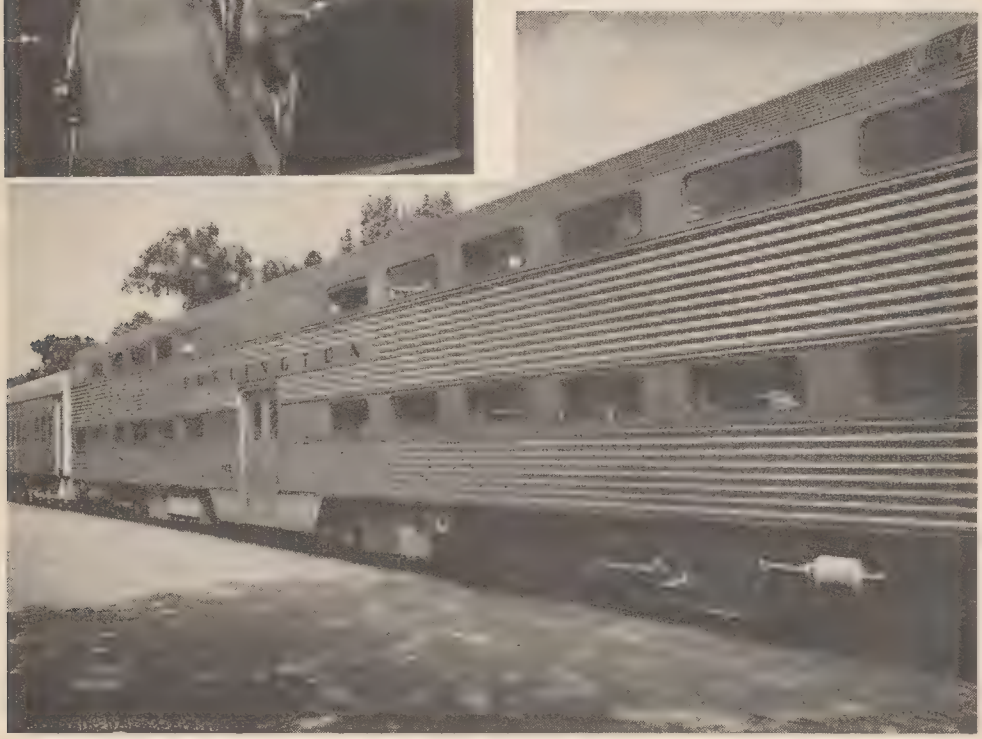
Q. *Please print an account of the snowslide in February, 1903 which took the Northern Pacific's double S trestle in the Bitter Root Canyon out from under a train that my mother and I were riding.*

A. A snowslide on February 11, 1903, which carried away a section of a high trestle on the Northern Pacific, was responsible for a remarkable accident. The trestle was the famous S-bridge between Wallace and Saltese, which was built on a reverse curve, in order to obtain a loop in a narrow valley of the Bitter Root Mountains, to replace a switchback with an eight-degree grade. The bridge was 300 feet long and over 100 feet high at the center, where it spanned a small stream called Willow Creek. At the wrecked section the height was about eighty feet.

The night before the accident a train consisting of a snowplow, two engines, two passenger cars, a caboose and a pushing engine had been battling with the drifts between Wallace and Dorsey, Idaho, and had made slow progress. At 4 a. m., the S-bridge was reached, and the engine and train crews being exhausted, it was decided to stop until daylight. All sections of the train were then coupled and the crews retired to the caboose. About 7 a. m. a snowslide

started far up the mountain and, gathering force, swept away the trestles of the bridge, over which stood the helper engine, the caboose and the rear trucks of the coach. Fortunately, no one was on the rear engine at the time, but within the caboose were eight men, who fell with it eighty feet into the deep snow. The remarkable thing is that of these men, with the exception of one whose hip was broken, only one was so much as rendered unconscious, and he soon recovered, practically unhurt.

There were eight or nine passengers in the coach, one of whom leaped through a window and fell seventy feet, but alighted unhurt in the soft snow, and returned to the coach to put on his shoes. The other passengers all escaped injury. The coupling was strong enough to prevent the coach from being dragged through the break, although it overhung nearly half its length. The caboose and helping engine were practically demolished, buried deeply in the thirty feet of snow.



Burlington has them doubled up in the aisles, or on either side of them anyway, in its new Budd-built gallery cars. Said one top-deck commuter: "This looks like a cost-of-living raise." Interior photo was taken from center of coach, which seats 96 on main-floor seats and 52 in the mezzanine

Lorne H. Sipperley, 3547 Penna., Detroit 14, Mich.

The original of this print hung for years on locker door at W. Detroit enginehouse. It was taken in Toledo, back in the days when the Toledo & Ohio Central (now Big Four) was a proud operating entity. Note screen used to blank out headlight on sidings

While the bridge was being repaired the old switchback was used to continue traffic, and within a month the trestle was replaced and in service. On account of the heavy storms it was necessary to keep two rotary plows working on the thirty-mile section between Wallace, Idaho and Saltese, Montana.

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Q. *Furnish a brief history of the Mammoth Cave Railroad.*

A. Incorporated in 1874 in Kentucky, the Mammoth Cave Railroad was opened from Glasgow Junction to Mammoth Cave, Kentucky, 8.70 miles in 1886. Track was standard-gage, laid with 56-pound rail. The Mammoth Cave Railroad was not built by the Louisville & Nashville, but prior to its construction a contract was entered into between the two companies whereby the L&N leased the Mammoth Cave Railroad for a period of twenty-five years from date of completion. Under terms of this agreement the L&N furnished the requisite rolling stock without rental charges, stop-over privileges at Glasgow Junction were given the L&N's patrons, and the net earnings of the line were to be paid quarterly to the Mammoth Cave line. This arrangement was continued until August 12, 1895, when a receiver was appointed for the cave carrier. The road was subsequently sold under foreclosure on March 17, 1898, and later taken over by a reorganized company, representing the original stockholders, shortly after the turn of the century. While the Mammoth Cave Railroad operated under its own power after 1903, it was a virtual "protectorate" of the Old Reliable, and that road with the Glasgow Railway were its only rail outlets to the outside world. Throughout most of its career the Mammoth Cave Railroad used a quaint Baldwin steam dummy locomotive, named *Hercules*.

The coming of the automobile forecast the eventual discontinuance of the railroad on September 1, 1931. At that time two locomotives and two passenger cars

Rail Photo Service, 93 Mass. Ave., Boston 15

Jawn Henry of non-articulated power. C&O's 21-year-old 3000 Class is the steam locomotive at its best. Units like the 3015, shown threading the great Ohio River Bridge at Limeville with a string of hoppers for Toledo, can and do handle 160 loads with ease

were owned by the line. For several years prior to abandonment business had been very bad and a number of experiments were tried in a vain effort to lure back the fickle traffic. It is ironical that the passing of the railroad was but a short time prior to the establishment of Mammoth Cave National Park on May 22, 1936. This latter development, for which the L&N was largely responsible, had been in the making for a number of years. However, even if the park had been a reality before the Mammoth Cave Railroad's demise, it would not have saved the little road. The competition afforded by the private automobile and the commercial bus could not be met equitably on a profitable basis for such a short haul. Throughout its forty-five year career the Mammoth Cave Railroad generally made money for its owners, and never had a wreck, a passenger killed in a train accident, or a law suit brought against it.

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Q. *Recently I saw a peculiar piece of non-revenue equipment on the New York Central. Lettered NYC X2275, it resembled a combination locomotive tender and workcar, with a window in the side, and the body placed on a flatcar. Can you identify this piece of rolling stock?*

A. This is a fire car, used in fighting blazes on the Water Level Route.

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Q. *What is the oldest name train in the world?*

A. The *Irish Mail* from Euston Station, London to Holyhead, over the London Midland Region of the British Railways merits this distinction. This train was inaugurated over a century ago by the London & North Western Railway, which became a part of the London Midland & Scottish Railway in 1923. November 3, 1950 marked the centenary of the complete opening of the Britannia Tubular Bridge over the Menai Straits, on the route of the *Irish Mail.* Built by Robert Stephenson, son of George, the structure is one hundred feet high, and spans the 1500-foot wide Menai Straits which have a tidal rise and fall of twenty to twenty-five feet. Before completion of the bridge, the *Irish Mail* had to disembark its passengers and mails at Bangor, whence they were conveyed by carriage to Llanfair, on the other side of the Menai Straits, and where the journey to Holyhead was resumed in another train.

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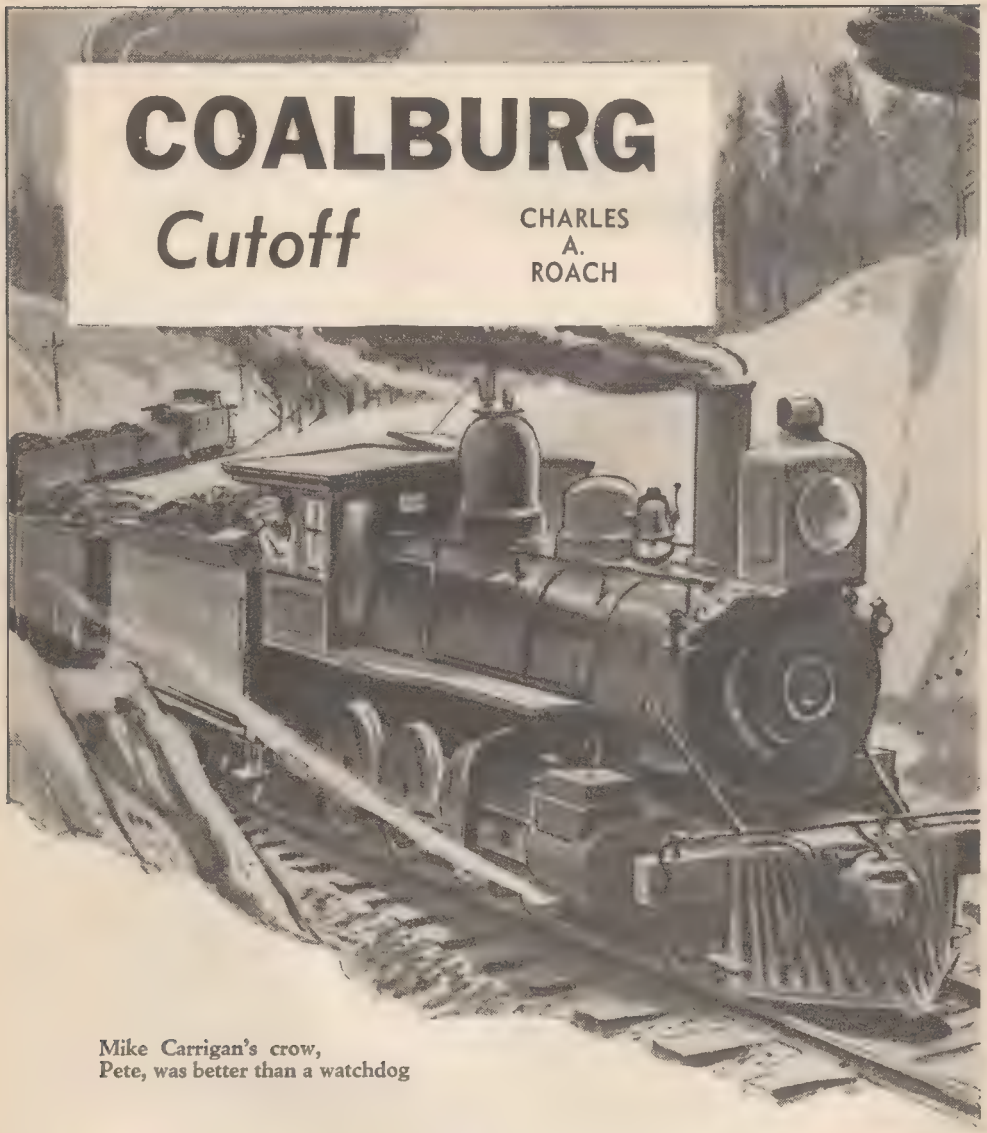
Q. *I understand that track pans were used by the Maine Central around the turn of the century. Kindly supply details.*

A. In June 1887 two fast limited trains were inaugurated between Boston and Mount Desert Ferry for the accommodation of through passengers to and from Bar Harbor. No regular stops were made on the Maine Central other than at Bangor, which meant that two stops would have to be made to supply the locomotive with water unless arrangements were made to take water on the fly. Consequently, trackpans were built between the rails at Mine Meadow, forty-one miles from Portland on the Back Road; at Dresden tank, forty-eight miles from Portland on the Lower Road, and at Burnham Junction, ninety-five miles from Portland, forty-one miles west of Bangor. These water-pans were about 1000 feet in length, about twenty inches wide, and deep enough to receive a water-scoop when lowered from a suspended position directly under the middle of the tender. Such scoops had been applied to three new locomotives and when lowered into the track-pan by means of a lever operated in the cab by the fireman, would receive several thousand gallons of water in twelve to fifteen seconds when the train speed was forty or forty-five miles-per-hour. The non-stop feature of the two limiteds was discontinued after the summer of 1888, and track-pans and waterscoops were removed during the early 1900s.

COALBURG Cutoff

CHARLES A. ROACH



Mike Carrigan's crow, Pete, was better than a watchdog

DURING THE EARLY spring of 1895, after booming around every state in the South, I wandered into Birmingham, Ala. one morning and stood beside the Alabama Great Southern snakes' shack, watching the night shift unload off the yard goats after an all-night task. I had hopes I'd see some guy I knew or one that looked easy for a feed. Then it happened: a short, stubby guy with a broad grin on his mug and a slicker under one arm, hit the cinders nearby headed for the switch shanty. I stepped over and called "Eddie Briggs!" He stopped quickly, and sizing me up chuckled as he grasped my outstretched hand. "You long-legged wanderer," he bellowed. "Where in the hell did you come from?".

Before he got a chance to gab I got in my plea about eating. Eddie waved me into the shanty, put his slicker in a locker, then grabbed me by the arm, saying, "Okay, boomer, let's go eat." Man

alive, those were the most satisfying words any man ever spoke. Eddie marched across the yards to a boarding house where several rails sat around picking their teeth. It seemed to me there was nothing so interesting as eating. Gosh! what food a man could get in one of those oldtime railroad boarding houses. Long platters of fried eggs and thick juicy fried ham that had been smoke-seasoned till it was sweet to taste. The gravy was so good that a large puffy hot biscuit flopping around in it was a sumptuous treat. Every morsel of food those days was pure, fit for the pallet of a kingsnipe or boomer hogger or skipper, on up the line to brasshats of any rank. Everyone enjoyed eating in a railroad eating house, with the usual title of beanery, hash house, greasy spoon or what have you. Just as long as it was managed by some smiling old biddy who knew the art of setting up a meal.

Well, after gorging myself until my eyes watered with the joy of a full stomach, I withdrew from the table and went upstairs with Eddie Briggs. In his room he dug out all the clothes he had accumulated while working for the AGS, then ordered me to strip and rebuild my outside appearance. "Cripes, Slim," he muttered, "you look like a Chi' waterfront bum in the rags you got on now."

Though I needed a bath and shave first, Eddie didn't have to urge me to change into new clothes. I assembled a fairly satisfactory outfit and then my benefactor ordered: "Gather all those rags under your arm and we'll go down to the barber shop where you can wash all the scales and cinders from your hair."

That was one of the greatest acts of assistance one boomer received from another, so far as I know, and one I always smile over when reminiscing of the long-gone past.

After I had cleaned up enough to resemble a fairly decent member of the railroad tribe, Eddie made his proposition. "Now listen, Slim," he said, "I don't want to be too nosey, but there's a job over on the Richmond & Danville you can get if you want to make a few dimes."

I was quick to agree to any kind of a job, since I'd discovered that all wandering boomers at the time were believed to be ex-ARU strikers and so were given the "nothing doing now" by all TMs, supers and GYMs. Besides, Eddie was working so hard to be helpful. He admitted, however, that he didn't know too much about the job itself.

"You know, Slim," he advised me, "if you connect with this and stick it out for a while—even if it's tough—something else may come up any time. Put in right away, for the R&D is new in this region and has plenty of money behind it, so I've heard. I've been watching for some big changes in the operating department. When one comes, I'm going over there myself, for there'll be a chance for men who have the know-how about train-movement and yard service."

"Gosh, Eddie," I told him, "whatever the job is, I can stick it out for a while. What the hell kind of a deal is it, anyhow?"

"It's a night watching job on the Coalburg Cutoff," he told me. "Just watching the track through a couple of deep rock cuts. Someone has been tossing rocks on the tracks at night to annoy the railroad, and of course it makes it dangerous for trainmen passing through. I've heard that the Georgia Pacific—which the R&D bought out—had the sheriff bring deputies over the hills with bloodhounds, trying to discover who the annoyer is. But he's a smart cookie and had covered his trail with red pepper so thick that the dogs got their snoots full of that stinging material, stopped sniffing the trail and sat down, after rolling in the pine needles which cover the steep hills thereabouts."

"One queer thing about the cutoff is that the region from Coalburg to where it intersects the old line at North Birmingham consists of steep hills covered with pine trees, and there are no inhabitants anywhere along the route. There's a winding creek running through the hills where the fishing is nothing to brag about, though a few have been caught. So it doesn't seem likely that anyone would resent the railroad's building its track through such a region, as has happened in other parts of the country."

"There's a guy working on our crew who put in a few trips through the cutoff and quit when a rock smashed the headlight of the hog he was riding one night. The headlight was the only thing wrecked, but there were other times when the R&D didn't get off so easily. Once the hog plowed into a large rock that broke the pilot and bent the pony truck before the engineer could stop. And while he and this fellow I'm telling you about were looking at the damage, other rocks were dropped close to where they stood."

"So this guy dragged his time and left the pike. There's only about two miles of real dangerous track running through

the four cuts, but he said that every dark night he'd get to wondering what might happen, and well. . . ."

You can imagine that I gave a lot of thought to that new job. I began to wonder if that saboteur hadn't a personal grudge against some railroader or the R&D itself, and so didn't care whom he hurt. If that was so, I wouldn't be any safer because I was a stranger, but there was still that problem of tackling the job so I could eat, or showing the yellow streak by giving some excuse for not taking it. I decided to try the job, come hell and high water. No snooping hillbilly was going to interfere with my making a living when jobs were so scarce.

"Eddie, you're looking at the new night watchman," I told my friend. "That is, if the job's still open."

BRIGGS GRINNED. "Don't worry, Slim, you're in. We'll see the roadmaster, for he does the hiring, I've heard. And if you get a shot at the job, you can stick it out for a while, even if you don't discover who the mysterious rock thrower is."

Without wasting any time, Eddie and I ambled down to the Richmond & Danville yard office. Beside it stood another small shack with a name on the door: "Roadmaster's Office." I stuck out my chest and entering boldly observed a chin-whiskered man writing at a desk. At another desk was a young fellow about my own age, who looked at me for a second and asked: "What can I do for you?"

"I understand there's a night watchman wanted here or somewhere around this district," I told him. "If there is a man wanted, I wish to apply for the job."

He scratched one ear, as if thinking. Meanwhile the older man spoke, "Where have you been working recently? And do you think you would like to patrol a stretch of track where you might get slugged or even killed?" He stopped talking and sat there staring at me questioningly, awaiting my answer.

I decided quickly on what to say, for I was damned tired of going hungry and booming around. Danger or not, I'd risk it. "I been working way up North, I was born in Kentucky and I'm not afraid of anything, night or day," I stated.

Grinning amusedly, the older man rose to his feet and came to the counter where I stood. "You get the job young feller," he said, sticking out his hand. "I'm a Kentuckian myself and proud of it. I think you'll do."

He was looking me straight in the eye and I grasped his big hard hand and shook it. "Glad to meet you young man," he continued. "My name is Dan Russell, I'm the roadmaster here and do the hiring of night watchmen." Still gripping my paw, he asked, "What is your name?"

I gave it to him, and he stepped outside the gate entrance to the office. After he had grabbed a hat off a rack and slapped it on, he said, "Okay, Roach, we'll have to ride a speeder up to North Birmingham. There I'll turn you over to the section boss who'll keep your time, get you a boarding place and fix you up for tonight on the track-watching job."

Outside Eddie was waiting for me. As he stared at me questioningly, I stated, "I am a night watchman, Eddie. Meet the boss, Mr. Russell."

They shook hands and Russell ordered me to drag a three-wheeled speeder on and head it for North Birmingham. I did. Then with a happy so-long and wave at Eddie, Russell started the speeder with me as motive power. During the run he straddled the rear end and rode with his hands on my shoulders as if fearing I might escape, I thought.

It was two miles to North Birmingham, where the new cutoff joined the old main line for Coalburg. I jerked the three-wheeler along at a good speed, until we rolled up to where a section gang was working.

As we rolled up and unloaded, Russell stopped me, saying: "Okay, Roach, this is as far as I'll go." Then called to a tall guy I took for the section boss and said: "Riley, I've brought you another night watchman. Find him a boarding

place and fix him up to start on the job tonight. You put him on the timebook at regular watchman's pay, and now, have your men turn the buggy for me to return to town. I have pressing business for this afternoon."

Riley's gang of Negroes jumped around the buggy and turned it quickly. Then off he went rolling down hill to Birmingham, without a backward glance at me.

Riley, the king-snipe, put me at my ease immediately. "Well, Roach, come with me and we'll see if Ma Thompson can take you in for a boarder," he said. "She's a fine old lady and will put up a good lunch for you on the job."

He led the way up the old track a short distance. Then he turned off toward a rambling old house which had a sign on the front porch stating—*Boarders.*

Riley entered the front door without knocking and called loudly, "Ma! Oh, Ma, I have a boarder for you."

Soon a door opened at the back of the house, and the old girl came slipping along cackling like she'd been tickled under the arm. "Well, well, Mr. Riley, another watchman?" she asked. He nodded and must have winked at her in some manner to prevent her from divulging some secret about the damned night job, for her face changed quickly from a smile to a glum stare at me.

"Well, I can take care of him, long as he's here," and she shut up quick, with inquisitive eyes going all over me as if to figure out how I'd look in a coffin or stretched out on the floor.

Riley laughed and said: "Fine. He'll want a lunch for tonight," and turned to go, with me standing in the front room like an empty boxcar cut off on a downgrade and no brake.

Suddenly, though, I became possessed of a thought, very unusual for me: I was curious about how far it was down to the cutoff where my place of watching was. And how would I travel . . . on foot, or would Riley take me on the handcar? So I turned quickly and called out: "Wait, Mr. Riley, I want to ask you something."

He stood halfway to the track, watching me as if he suspected I was scared of the night watching job.

But I soon caused his queer stare to leave his ruddy mug, when I asked: "How'll I find the place where I am to watch . . . and how'll I get down to the rock cut? I understand there is another guy being kept on part of the line where watchmen are needed."

He grinned. "Yes, there's another watchman down there and a damned good one. Been on the job all winter. He's got an old boxcar sitting beside the track for batching and sleeping. His name is Mike Carrigan. You'll like Mike, for he's a very wise and agreeable lad. Who told you about him?" He scanned my face as if surprised that I should know there was another night watchman. I stated frankly. "Oh, in town where I heard about a man being needed."

He seemed satisfied at my explanation and said. "You'll have a speeder to ride down to your job and I'll fit you out with lanterns, and a flag to use in daylight should you need it. Also, I'll loan you a double-barreled shotgun, and furnish cartridges in case you get a chance to plug the perpetrator of all the rock throwing trainmen have had to contend with."

"In case you have a chance to shoot at the person, or persons, that are doing this, don't hesitate to do so. For the company will stand behind you with the law."

He turned toward the track and I with him. He walked to the toolhouse and opening the doors showed me a nice shiny red speeder, and an array of flags, torpedoes, a new spike maul and some pick handles. I suggested, "I might use one of those new pick handles, too, just for a kind of walking cane."

Riley laughed, "Roach, you're a queer young feller. I bet you stick down there all summer."

It being about eight or nine o'clock in the morning, I said. "Well now that I know how I'll be fixed up for tonight, I think I'll go back to the boarding-house and take a little rest."

The mysterious rock-pusher assaulted anything—engines, speeders, handcars

RILEY was Johnny on the spot when I came over to the toolhouse with my night lunch. I was feeling quite chipper for my first night's effort at tackling a job I didn't know a damned thing about. Riley was in a good humor and chuckled as he talked about things of interest to himself. He gave me the shotgun and a

box of shells loaded with buckshot, a new pick handle and flagging material, then told me about the territory I was supposed to watch.

"When you arrive at the first girder bridge, over the creek, just about a hundred feet north of mile post No. 4, that's where your territory begins. From there it goes on through the big cut and on toward the next cut, which is not so deep as the first one. It's the first cut you'll have to watch closely, as the sneaking rock tosser uses it more often. He's wrecked two trains in that cut, and caused injury to several firemen and two brakemen, and he's broken six or seven headlights on engines dragging coal hoppers from Birmingham. You'll observe that all trains on the cutoff come headed for Birmingham, and all the empties are brought into Coalburg on the old line about a mile across the hills from the new cutoff. One thing more, Roach . . . do not drop off to sleep."

My first night was easy. The moon was full and all the wooded hillside was bright, with objects visible for a great distance as I rolled my speeder through the cuts ahead of every train I heard coming from Coalburg. The efforts of the engines resounded far and wide for several minutes before the headlight showed in the cuts on my territory. Each drag was usually about ten or twelve loads behind a 2-8-0, that being the general run of hogs on the coal drag shifts. The same engines were able to pull just six, sometimes eight loads when they were running both ways over the old line. So it was easy to see what the reduced grade gave the railroad in return for building the cutoff. Three or four trains each night was double the tonnage on the old line.

I was very fortunate in having moonlit nights, and no trouble with the rock-thrower until I had been there nearly a week. Then one night on my second trip down to clear the line for a drag, right in the middle of the deep cut a rock smashed between the rails some three or four feet ahead of me.

I gave the old speeder two or three swift jerks and shot out of range of the possible follow-up with a second rock. After striking the center of the track, the rock bounced out on my left side, which denoted the direction from which it came. That made it from the right side, and of course atop the cut. Other than speeding up a bit, I did not make any sign of being alarmed until I reached the end of the cut; then quick as I could, I jerked the speeder off the rails, grabbed the shot gun and ran full tilt up alongside the hill, just above the creek. I angled upwards, with the hope that I might get a glimpse of the saboteur. Just as I began to get winded on the steep climb, I heard a slight crackling atop the hill, and although nothing was visible, I raised the old gun and fired in the general direction of the noise. There was more crackling, with a visible movement of the bushes as in a wind, but what it was I was unable to see, as I gained the hilltop and breathlessly ran toward the spot at which I had aimed the gun. But after a few minutes I gave up trying to find what, if anything, I had struck with my wild shot in the dark.

I got back beside my three-wheeler, just as the next drag came along. He was coming at quite a clip with his old oil headlight shining brightly and obviously not a worry on his mind. The roar of the exhaust resounded across the creek as I leapt across the track with my two lights and highballed the hogger, who gave two short blasts of his whistle in passing.

Somehow, the incident of that rock just missing me caused my thoughts to revert back many years to something that happened to me when I was doing some switching on the Cotton Belt. It was night at the time, and raining to beat hell, as I jumped in between the cut of cars the hogger was handling, and the heel of my right shoe, caught in the guard rail of the switch. However, I was wearing a shoe with elastic grip, instead of laces and thus was able to jerk my foot out of the shoe, just as the wheels of the

car following rolled over it. The shoe was chewed up, but my foot was not injured at all. And when I related what had happened to my skipper, he merely stated. "Hell Slim, a miss is as good as a mile." That also covered the rock that had just missed my head.

After the coal drag was gone, I walked gingerly into the cut, with my lantern shining along the side of the track where I thought the rock that missed me might be lying. I soon found it; it was about the size of a man's head: plenty large enough to have brained me, if it had struck where the sneak wanted it to.

The time was about 3 a.m. now. At daylight, when I heard the mine engine whistle to call the miners to work far away down in or near Coalburg, I started back up the grade to Ma Thompson's boarding house for breakfast. I related my escape to no one, not even to Ma who always asked me if I'd been bothered during the night.

I suspected she was wiser than she let on about the rock thrower. It was in her voice, trembling like, and her wise, serious blue eyes moving about restlessly when she talked to me. I recalled how Riley had stopped her from spilling something when he brought me to her boardhouse.

Of course I did not figure on sticking very long on the damned job if I could get my name on the extra board, either switching or on the road, braking.

Things went along smoothly all the rest of the week. No more rocks were tossed at my bean, so I decided to drop down and see the other watchman who Riley stated was a damned fine man.

I rose about noon the following Sunday and after lunch rolled my three-wheeler out and went visiting Mike Carrigan in his boxcar home. As my chariot came to a stop in front of the boxcar door, I heard a loud squawking and fluttering about my head, as though some large bird or chicken was inclined to attack me. Turning about quickly trying to see what the hell was doing all the squawking and flapping of wings, I discovered it was a large black crow. It was all fluffed up as if trying to show me I was a trespasser. I laughed at the crazy bird, just as Mike stepped out of his boxcar door.

Mike was grinning as he observed the crow flapping his wings about my head and cawing as if I was something worth raising hell about. I climbed off my buggy, pulled it off the track beside the boxcar and stepped over to where Mike stood with a half grin across his big mug. I stuck out my hand and said. "Mike Carrigan, I suppose. My name is Roach, the guy that's trying to hold down the watching job just above here." He was six feet, with a square jaw and dark brown eyes.

MIKE GRABBED my hand and shook it with a grip like an alligator. "Glad to meet you Roach," he said. "I heard there was a new man on the big cut job, but I haven't had time to run up and chat with you. How you like watching?" He gave me a searching stare, as if curious to know if I had met the tormentor who was causing all the trouble.

I replied wtih a grin. "Oh it's a job, and as long as I have to do something, anything that isn't hard work is okay."

Mike invited me inside his car residence. It was fixed up nice and clean like a small house, with curtains on the windows, a coal stove for cooking and a bunk bed which looked inviting.

I remarked, "You're a good housekeeper, and with a watchdog like that crow, you're all set for a long stay."

Mike chuckled. "Pete the crow is a damned smart bird. I saved his life quite a while back, when an old hillbilly shot at him and wounded one leg and a wing. I caught the bird and set the broken leg, put a splint on his wing, then nailed him in a cigar box with his head out one end, so I could feed him. And there he stayed, until he was able to walk and fly again. So I guess he thinks he's got to pay me for the service by raising hell at everything that comes around here, like he was hired for a watchman."

The old man's hunting included railroads

I laughed at Mike's caring for the crippled crow and how the blamed bird had taken it upon himself to stay around the boxcar and keep an eye on things he thought might not be good for Mike's interests.

Mike went on. "Pete usually sits up in the top of some tree during the day, when I have to sleep, and if anything comes snooping around the car, he sails down, squawking like hell and wakes me up. If I see things are okay, I feed him some crisp fried bacon skins, which he loves, and after he stuffs himself and sees I am okay, off he flies to a tree to sit and watch until I rise in the evening. He's an unusual bird and I'm going to keep him as long as I'm here. He's better than a dog, for I can leave both car doors open on warm days, and get what air is stirring, and Pete sees that no one enters the car."

While we were visiting, a coal drag rolled past the door, and the hogger yelled: "Wake up you shanty Irish. What the hell are you trying to do, sleep

your life away!" And he and the tallow-pot laughed loudly, the old hog roaring as it climbed the grade around the curve. Mike got a big laugh out of the kidding the engine men gave him.

"You like this watching job I suppose," I said.

"Sure man," he replied. "It's better than workin' on the section, bridge gang or digging coal. I've taken a hand at all of them. This is easier and the pay is not so very bad, $1.25 a night for twelve hours."

I observed time was slipping by fast, and as I'd have to pump the old buggy up the grade three miles for supper I rose and said: "It's been fine meeting you, Mike. And I hope you are able to stick here long as you want to. For my part I crave another job, if I am not slugged before I get a chance to apply for what I want."

We stepped outside and Pete, watchful as ever, came sailing down squawking like hell as if to warn me not to try anything, as he had his eye on me for a good-for-nothing bum. Anyway, Mike and I shook hands as I climbed aboard and started up my speeder. Neither of us had mentioned the rock thrower, or that we had seen or heard anything out of the ordinary.

As I pulled up the grade a thought came to me . . . what if Mike wanted to hold the night watching job as long as he could, would it be possible for him . . . to do a little rock throwing from the top of the big cut in order to keep the second watching job vacant, and himself secure as the only man able to stay on the job at all, Such skullduggery had been done, so I'd heard on other jobs.

I recalled how Riley had bragged about Mike being a very dependable watchman, and him holding the softest place on the two small cuts where there had never been any trouble.

I soon rolled into North Birmingham, rolled the buggy off the track and cleaned up for supper. Ma Thompson for some unknown reason seemed to be watching me more closely than usual, and made me nervous. But I restrained myself from asking her why she acted so strangely.

I suppose I was all keyed up over having the rock tossed at my head and felt there was someone who knew more about the saboteur than they were willing to tell. A close-mouthed bunch, like one often runs into.

Things progressed on an even keel for all of the week following and one night I jumped on a coal drag crummy, got the name and address of the TM, then mailed in my application for a job.

Three days later Riley strolled over to Ma's domicile with a letter for me, in a R&D envelope.

Riley and Ma both were very curious as to what was in the letter. They seemed to think, perhaps, I had been fired by mail, or something was wrong, and almost died wondering, and talking about me getting the letter.

The TM had stated he would have a conductor drop me off a note as soon as he could use me. That was all the secret the letter held. However, it gave me a lot of pep, and I laughed and chuckled at everything that evening, which apparently worried Ma more than if I had been struck with a rock while on the night job. But I felt great with the shacking job coming up.

NEXT MORNING after I returned from watching, there was gloom in Ma's actions and speech. Unable to figure out what was the trouble, I asked her. She gave a sigh and looking searchingly at me said: "Charles, you probably don't know the old man that lives alone in the small cabin back of Mr. Riley's house. He's missing. He started out to hunt rabbits yesterday morning, and has not been seen since. He's getting quite old, and everyone knows he is not strong enough to stay out all night in the cold night air. We think he's lost, or maybe hurt some place and helpless. Mr. Riley and three neighbors have gone out hunting for him. He's rather set in his ways. and headstrong about anyone trying to direct his movements."

I ate breakfast alone as usual. Then Ma came in and with a long face said: "Charles, you may not know it, but Dad, as the old man is known, and called by almost everybody, is the father-in-law of Mr. Riley. He had a string of traps along the crooked creek that runs under the new railroad tracks between here and Coalburg. He made a little money catching muskrats, coons and shooting rabbits. But when the new railroad started building, the noise of blasting and bridge-building frightened all the animals away from that region, and it hurt him badly. He swore he'd get even with the road."

I don't know what made me think of it, but somehow I got to wondering if the old trapper might have been the sabotaging rock thrower, that tossed rocks at engines at night, just for spite, because they had ruined his game-hunting along the creek. Maybe it was. Maybe the old guy had gone on tour yesterday with a sudden wild idea of spiting somebody, or wrecking a train and had had an accident himself, instead. I went to my room and to bed.

When I got up at noon for lunch there was quite a commotion downstairs. Riley was there, and several men I'd never seen, and they were all talking about Dad, the lost man. They had returned from searching for him sometime during the early forenoon and all seemed settled as to where the old man was and what happened to him. He was in the hospital.

Listening, I learned a new angle of what had happened. The morning he went rabbit hunting, he had perhaps thought so seriously about the railroad causing the game to be driven away from his traps on the creek, that an idea came to him to get revenge—if not on the railroad . . . on one of the damned men that watched the track at night to keep him from throwing rocks at the engines.

And the old man, roving along the pine-covered ridge above the cuts where Mike Corrigan's boxcar sat, perhaps conceived a plan to kill Mike, and settle one score at least before he died. So he climbed a tree just over the top of the ridge back, deciding if he shot from that tree, at Mike, who was not just a man to him, but a railroader, the echo of his shot would not sound as if it came from the region where Mike batched. The hill would cause the echo to bounce back down another draw, or small valley. Then Dad would climb down from the tree, and return to his shack feeling satisfied he had at least gotten some revenge.

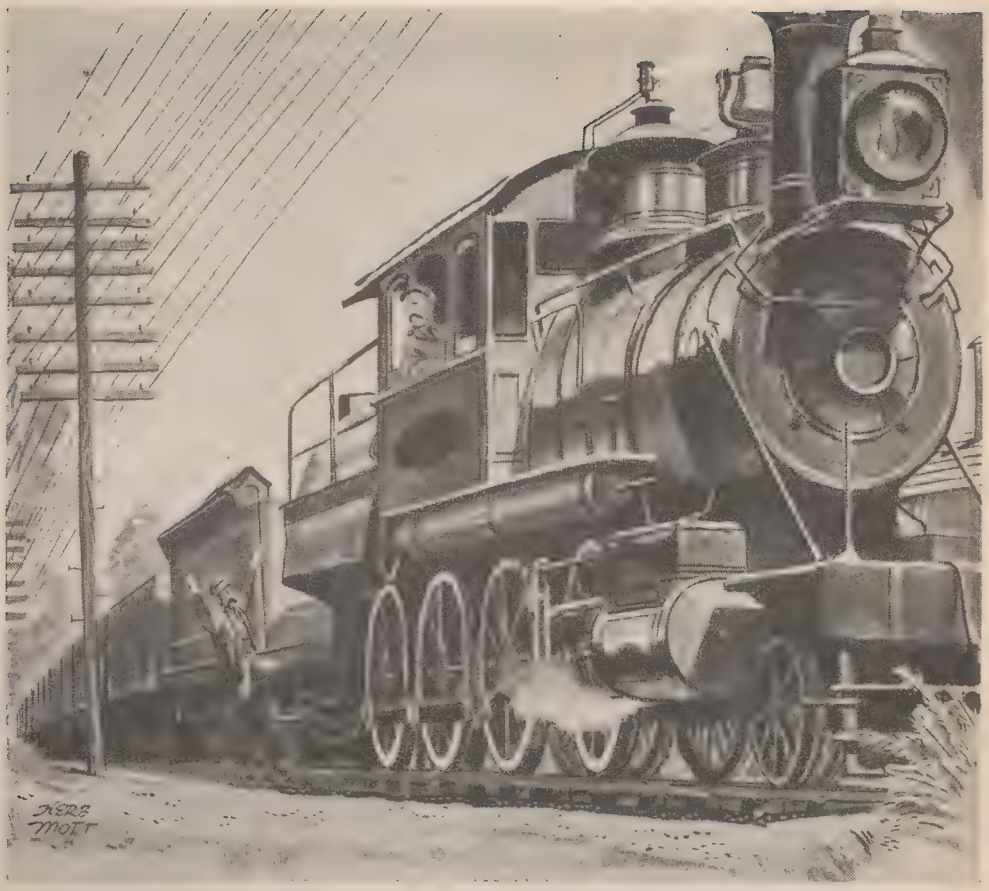
Whatever it may have been, if those plans were figured out by him, as the sheriff had deduced, the old man failed to consider the capabilities of Pete, the pet crow of Mike Carrigan. For when Mike was aroused from his bed during the day by a hell-roaring squawking at the boxcar door, he naturally followed Pete as the bird made short flights up the hill, then back to Mike, squawking all the time as if there was something very exciting to see, if Mike would only keep following him.

Mike did, and found the old man stretched out under a pine tree, lying as if dead. Broken branches showed he had fallen out of the tree, and it was obvious to Mike that the old man had been up that tree and that Pete had seen him from where he usually sat during the day, high in the top of a pine near the boxcar, keeping watch on the car and Mike. With enmity against the hunter that had shot him and broken his wing and leg, Pete did not lose any time heading for the man climbing up the tree.

Whatever Pete's decision, he must have attacked the old man, and so furiously that the old fellow lost his grip up there and fell, breaking both legs and one arm and dislocating his spine.

That's about all there was of interest to the Coalburg Cutoff, for that very evening, before starting down the hill with my night lunch for another shift watching, the skipper on a drag of empties dropped off at the toolhouse and stuck an order in the door so it would be seen by me or Riley. The gist of it was that I was on the extra board for night duty.

Did I go to town . . . ? Hell yes, and I never looked back as I left. Night watching was not for me, a rambler.



200 Years

ON THE READING

JOSEPH R. NEVEIL

IT WAS IN 1829 that the first locomotive ran on American soil. This honor was bestowed upon the *Stourbridge Lion,* imported from England by the Delaware & Hudson Canal Company, now known as the Delaware & Hudson Railroad Company.

Only seven years after this historical event, my grandfather, George Neveil, hired out on the Reading, or what was then the Philadelphia & Reading. Little did he realize that spring day in 1836 that 115 years later, his descendants would still be working for the Reading, having maintained an unbroken record of service and having amassed a grand total of 200 years' service by the entire family.

On April 4, 1833, three years before my grandfather started his career, the company was chartered by the legislature of Pennsylvania as the Philadelphia & Reading Railroad Company, to build a road from Philadelphia to Reading, a distance of 58 miles. Work was started in the spring of 1835 and portions of the road were opened for travel in July, 1838,

The author, Joseph R. Neveil, started his rail career as a Reading fireman in 1888. He posed four years ago in Engine 1712, a 2-8-2

thus making accessible on a large scale the coal fields of eastern Pennsylvania.

The amount of trackage in this area grew steadily due to the constant increase in the demand for coal, and the Port Richmond yards in Philadelphia became the hub of the system. It was here that my grandfather, a blacksmith, started his career. He was the first blacksmith at this point and spent his entire period of service there, retiring in 1865. During the latter part of his employment, when he became a foreman, he helped shape the destiny of the motive power the Reading used until the late 1800s. His two sons, also inspired by the glory of the "new" railroad industry, hired out on the Reading as blacksmiths and worked under their father, also spending their careers at Port Richmond from 1836 to 1856.

My father, Joseph R. Neveil Sr., was hired at Port Richmond on April 14, 1856, at the age of 18. He became a fireman and seven years later was promoted to the right side. This began a series of promotions from one point to another on the Reading System, until he became engine-house foreman at Port Richmond in 1888. He held this post until August 7, 1907 when he retired after 51 years, 4 months and 16 days of service. During that time he had run engines over practically every mile of the Reading's possessions and in 1907 was the only living person having any recollection of the building of the first roundhouse at Port Richmond, which took place when he was a mere lad. While the roundhouse was being built he carried baskets of shavings home to his mother, little realizing that many years later he would become foreman of the very same building. The retirement of my father saw the twilight of his era of railroading. Soon to come were the days of heavier power, longer trains and speed runs. Yes, the age of the balloon stacks was fast drawing to a close.

My brother, George Neveil, spent five years on the Reading as a fireman from 1883 to 1888 and another brother, John, spent three years as a fireman from 1896 to 1899.

I started my rail career at Port Rich-

mond in 1888. I worked my way up the ladder and in 1891 my primary desire was satisfied when I was promoted to engineer running out of Port Richmond and Third and Berks Sts. in Philadelphia.

Then as now, Port Richmond was a major yard, containing 23 wharves extending from 300 to 800 feet into the Delaware River, with trestle-work and chutes allowing a direct discharge of coal from the hoppers into vessels. The immense size of the yard is shown by the fact that more than 35 miles of track were distributed among the wharves. The great expansion of the Reading during those early years is further evidenced by its growth from a small carrier with a handful of engines in 1836, when my grandfather started, to a railroad with a fleet of approximately 500 locomotives by the year 1886, when I started my career.

IN THE 1870s coal was also shipped overland over the Reading's New York Division to the Communipaw docks in Jersey City, which supplied the New York area. This outlet was becoming increasingly congested, however, and in 1880 it was evident that Port Richmond and Communipaw would not be able to handle the increase in coal traffic demanded by industry in the New York area. It was then decided to build a yard similar to the one at Port Richmond, on the New Jersey shore opposite Staten Island, approximately 15 miles south of New York City. This site was named Port Reading. Work was first started in 1891 and the yard was opened on October 30, 1892, with a pier having four tracks running the length of it for the handling of coal cars.

In the early fall of 1892 I was called into the superintendent's office at Port Richmond. I couldn't begin to think why I should be called into the super's office and my head spun with my own questions. I was soon ushered into the office and was asked if I would consider taking the first train into Port Reading yard, when it opened. I accepted the offer eagerly and on October 29, 1892, found myself running light with engine 629 from

Part of the gang posed for the "black box" back in the days when the author (in light denim overalls and jumper, in front of window) was hauling coal drags out of Port Richmond

Ninth and Springgarden Sts., in Philadelphia, to Port Reading Junction, N. J. (now Manville). I was to lay over there until the following day, when the first train would be brought up from Philadelphia; and I would pick it up at Port Reading Junction and take it in to Port Reading. The junction is about three miles west of Bound Brook, N. J. where the Lehigh Valley and Reading tracks intersect.

The first train originated in the coal fields at Shamokin, Pa.; came over the Main Line Division to Bridgeport, Pa., thence to Wayne Junction and to Port Reading Jct. over the New York Division, where I picked it up. The train consisted of 45 12-ton hoppers. I coupled onto the train with my fireman, "Cap" Conley, who was killed a few months later. We left the Junction and proceeded to Port Reading. These last 19 miles clicked off rapidly and another page was added to the already long history of the Reading as we entered the yard with the first train. Soon after, part of the train was put up on the pier, the coal was chuted down into the waiting canal boats and the first shipment of coal through Port Reading yard was on its way to New York City. The canal boats were later replaced with the present coal barges. Thus started the first of the millions of tons of coal which have since passed through Port Reading yard.

The grade at the piers in the yard makes it necessary for engineers to back their trains out and across the adjoining Central Railroad of New Jersey crossing (about half a mile), so as to get a start to make the incline with the loaded hoppers. This practice is still followed to this day.

Engines are given a complete servicing at the Port Reading roundhouse; fires are cleaned, necessary oiling done and coal and water are taken on at the coaling station. The present roundhouse at Port Reading was built in 1917, replacing one formerly built at the opening of the yard.

The gravity method of discharging coal from the hoppers was abandoned in 1917 with the erection of an additional pier on which a dumper was built. This dumper lifts an entire hopper and empties its contents into a massive chute through which the coal flows to a barge below. Cars are emptied at the rate of one a minute!

The main office at Port Reading was formerly on the coal dock and consisted of a mere shanty. This office was replaced by the Port Reading General Offices, a two-story structure completed in the early 1900s. It was in this office that 41 more years of service were added to our family total, 16 years from 1916 to 1932 by my daughter Almira, 5 years from 1941 to 1946 by my daughter Georgia and 16 years from 1931 to the present by my son William, who is still employed by the Reading. My other son, Raymond, worked in Port Reading for six years, leaving in 1922 to join the Pennsylvania Railroad, where he is a conductor out of Penn Station, New York City.

My career ended at Port Reading in 1920 when I lost out in the now-famous wildcat strike.

This, to date, is the story of the railroad career of our family, started in 1836 by my grandfather and carried on at the present time by my son William. It represents a string of 115 years of unbroken service and a grand total of 200 years service by the entire family. It can truly be said that our family and the Reading grew up together.

MORALITY-CONSCIOUS Jay Gould tried to uplift New York spiritually in the ***Railroad Gazette*** of 1883. He gave as his reason for stopping the late trains on the elevated road: "Night trains are conducive to late hours and dissipation. If they do not run, people who would do otherwise will go home and the tone of society will be improved." But citizens failed to appreciate the Gould moral reformation agency and petitioned the state legislature to compel the corporation to accommodate the public—or at least those people unfortunate enough to be obliged to work after midnight.

I wish they had more patience, we're only ten minutes late!

Electric Lines:

LACKAWANNA

CONNECTING the two largest cities in the anthracite coal area of northeastern Pennsylvania, the Lackawanna & Wyoming Valley Railroad, a third-rail interurban, is nearing a half century of freight and passenger service in a busy coal-mining region.

Earliest plans for the electric line that was to become the L&WV contemplated only a local trolley line to Nay Aug Park on the southern side of Scranton, Pa. with a large Spanish-type station, to be called the Alhambra, at the end of the line. Plans were drawn up, but before any rail had been laid other interests entered the picture and the scheme for a trolley line was all but overshadowed by plans for an interurban between the busy cities of Scranton and Wilkes-Barre, together with local lines in both cities.

The promoters realized the benefits that would come from a first-class interurban road near the center of the anthracite coal field which extended from Carbondale on

and WYOMING VALLEY

STEVE MAGUIRE

the north, through Scranton and Wilkes-Barre to Nanticoke at the southerly end. In this 50-mile stretch, the cities of Scranton and Wilkes-Barre, twenty miles apart, were in the central and heaviest-populated part of the mining region. In 1900 the promoters, realizing that there were inadequate rail connections between the two cities, pushed plans for their new line, which would compete with three steam roads and two slow trolley routes. The additional plans for local lines in Scranton and in Wilkes-Barre were never carried to completion.

The interurban road was to be built, first from Scranton to Wilkes-Barre, and then northward from Scranton to Carbondale. Between Scranton and Wilkes-Barre the Lackawanna Valley runs along the Lackawanna River, and the Wyoming Valley, which is a continuation starting where the Lackawanna River flows into the larger Susquehanna, near Pittston, Pa. Both of these valleys are in the Allegheny Mountain region of the northeastern part of the state, and due to the valley-mountain combination, construction of a rail line was made extremely difficult and expensive.

The original charters for the road were those of steam roads, in order to make it easy to obtain land for the tracks through condemnation. In 1901 George Westinghouse and his corporation, the Westinghouse Electrical Company, became interested in the road, and seeing in it an opportunity to experiment with open third rail as a means of power, purchased large interests in the promotion and thereafter supplied the electrical equipment as the construction went on.

Although it had been planned to enter Scranton from the South Side over city streets to the Court House Square, a purchase of 98 acres of land in Roaring Rocks Basin, close to the center of that city, and just west of the DL&W tracks, enabled the line to be brought to the downtown section on its own right-of-way and also gave it considerable space for the construction of its shops, power house and freight yard—all in downtown Scranton.

The estimated cost of the undertaking, three million dollars, was exhausted long before work on the right-of-way was near completion. Expensive trestles and fills afforded a level roadbed across the valleys

Half-million-dollar trestle north of Wilkes-Barre measures 550 ft. between stone piers; contains 700 tons of steel

Edward S. Miller, W. Pittston, Pa.

Wm F. Ellis

Osgood-Bradley combine 114 approaches N. Main St. crossing, in Wilkes-Barre, protected by traffic light indication

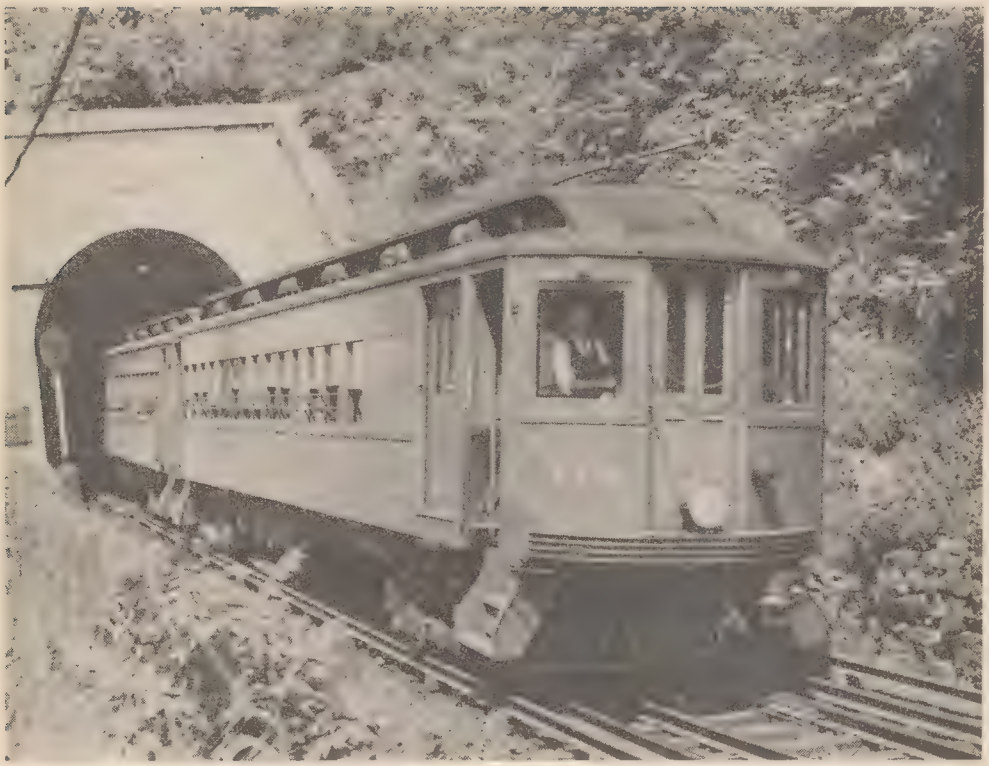
and hills, but the expense was more than anticipated. Moreover a bridge had to be built over a roadway and two railroad tracks just north of Wilkes-Barre. So three million dollars more was thrown into the enterprise. The bridge alone cost five hundred thousand. One of many along the twenty miles of valley route, it is 550 feet in length and contains more than 700 tons of metal.

The name Laurel Line was taken before the start of operations, after a public contest to choose a shorter name than the official title, Lackawanna & Wyoming Valley Rapid Transit Co. It remains in use to this date, as does the emblem of three rails joined at their bases with a laurel wreath circling them. The three rails of course refer to the third-rail setup while the laurel emblem is said to symbolize the victory of the road over the many obstacles placed along its route by nature.

The first regular operation was on May 20, 1903 the day the road was opened to service from Scranton to Pittston, about half the distance to Wilkes-Barre. Entry into Wilkes-Barre brought objections; however, after some legal skirmishes, the line was finally completed late in the same year. In Wilkes-Barre the road used the old canal bed that runs close to the center of the city, where, to avoid the hazard of the open third rail, overhead wire was erected and cars used trolley poles through the city. Regular service between the two terminals started on December 16th, cars running on twenty minutes headway.

Before the advent of through service on the interurban the only frequent through rail transportation between the terminals was on the Delaware & Hudson Railroad. Within a week after the line was opened, the D&H cut its fare in half and attempted to speed up its schedule to keep up with the new electric road. The steam road threatened to build a four-track electric line from Carbondale to Wilkes-Barre for direct competition with the interurban. This, of course, never came about, but it completely broke up a long-standing friendship between Presiden Loree of the D&H and George Westinghouse, who headed the L&WV interests.

The first route of the Laurel Line went up a steep, long grade out of the Scranton



Edward S. Miller

Single-tracked Scranton tunnel, nearly a mile in length, has been in service since October 10, 1905

One of the last wooden cars, Number 23 swings around curve at Scranton Terminal, prior to abandonment of the Dunmore branch line which it served

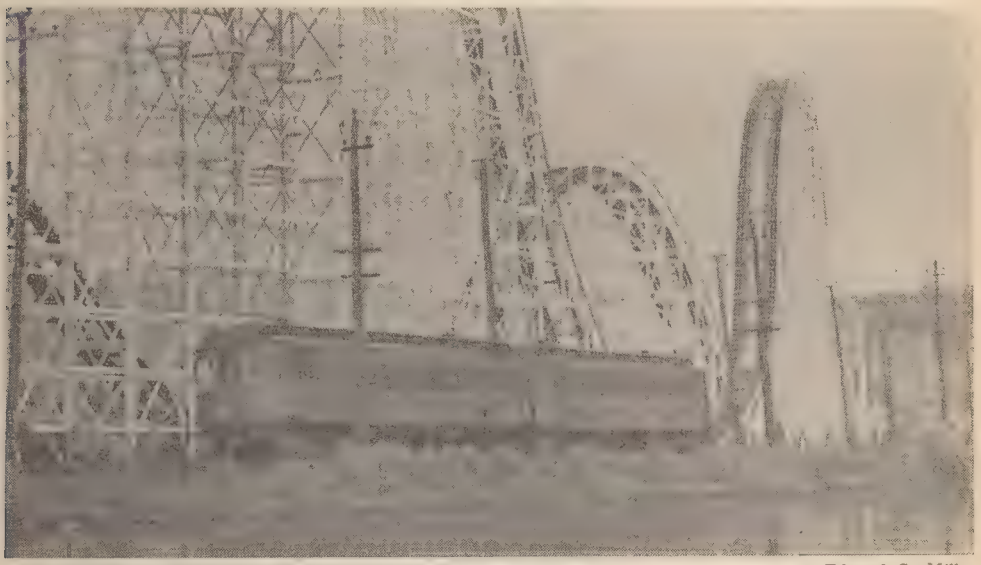
terminal, along Roaring Brook and up and over a long hill through the south side of the city to the present line at Connell Junction. A tunnel which would eliminate the long two percent climb and cut down the running time, had been planned from the start, but was not completed until 1905. In the meantime work was started on a line which would go north through Dunmore to Carbondale, branching off the old main line on top of the hill on the south side, leaving the main track at Laurel Junction. This line was constructed as far as Dunmore and an interchange track connected with the Erie Railroad, but the rails never went any farther toward Carbondale. With $6 million already expended, the owners had little left and the tunnel through Scranton's south side was still to be built.

Regular service to Dunmore was begun on June 20, 1904. In later years, when the passenger service ran through the tunnel, the Dunmore line continued to operate, although on one of the strangest runs we have ever seen. The cars ran out of Scranton terminal up over the old line to Laurel Jct., turning off to Dunmore where the car reversed and ran back, passing close to Laurel Jct. and rejoining the old main line which was used as far as Maple Ave. Station. Here the car was again reversed and returned to Scranton terminal by Laurel Jct. At no time was the car more than three miles from downtown Scranton, yet the run was about seven miles in length, with three terminals.

Wooden cars were always used on this branch line, even to the end when traffic had steadily declined so that, except for morning and evening runs, there were few, if any travelers.

The tunnel at Scranton is one of the longest interurban tunnels ever built. It is 4747 ft. long—nearly a mile—and is single-tracked. Service through the bore began on October 10, 1905. The old line over the hill was kept for freight service and was not torn up until after the Dunmore local cars were abandoned. Freight service began using the tunnel in 1914, after an accident in which a car broke loose from a freight ascending the route over the hill.

FROM THE OPENING of the line, freight and lcl service has been provided. Unfortunately, the Laurel Line is somewhat in the same boat as the Long



Edward S. Miller

Miners' holiday. After a week behind an electric mule, anthracite diggers wheel out to Rocky Glen Amusement Park for a couple of dips on the scenic railway

Island Rail Road, deriving most of its revenue from passenger service. Only 40 percent of the L&WV revenue comes from freight traffic. Three electric locomotives handle carload freight, one of these being over 50 years old. Number 401 was originally built by the Westinghouse Company in 1896 for experimental purposes and is said to be the first freight-passenger locomotive ever built. The other two locomotives, 402 and 403 were built ten years later for the L&WV, following the purchase of No. 401 from the Westinghouse outfit. They, too, were constructed along the same antiquated lines as the 401 but with slightly more pulling power. It is said that the longest freight train on record on the road consisted of 17 cars. The usual train carries seven freight cars, empty and loads—the motors are too light for much more. Sometimes when they get a heavy drag and the motor starts to slip, a brakeman will drop off and walk ahead of the locomotive throwing handfuls of cinders from the roadbed on the rail to give extra traction.

There are plenty of cinders on the roadbed, for from economic necessity they are used exclusively as ballast. The entire anthracite region is mined and caveins and shifting ground are a common occurrence. It is a heavy expense to the road to maintain the alignment of the roadbed. A six-man gang is kept busy daily taking care of the frequent dips, sags and shifts. The interurban company has no recourse as the mine owners are not liable.

LCL service performed by four motors bought when the line opened continued until 1948 when truck competition had cut into it so much that it was discontinued

Top of page: **Carbarn at Scranton is GHQ for the picturesque and varied assortment of equipment listed on page 90**

At Left: **Newest of Laurel Line's freight motors is 31-year-old 403, which normally handles seven cars; can do better when brakeman tosses cinders under her wheels on heavy grades**

Rear view of the Scranton carbarn and yards. Tunnel begins several hundred feet from far end of structure

At Left: **White flags for a juicefan safari. No. 32 poses for her portrait on cliff-climbing Minooka freight branch. Main line is visible through tree-tops, far below**

Wm. F. Ellis

and the franchise sold to a local company at Scranton.

The Laurel Line has always depended heavily on its passenger traffic and at one time four amusement parks were located along its route. Only one such park remains today, Rocky Glen just outside Scranton. Cars still carry crowds to and from this park on weekends and holidays. Commuter traffic is the mainstay of regular service, but has dropped somewhat since the war. Fare once was fifty cents for the round trip of forty miles. Today it is a dollar and thirty-eight cents. Running time after the tunnel was completed was slightly more than forty minutes, but that was cut years ago to thirty eight minutes, which continues to be the regular running time. Limiteds making only one or two stops ran up to the years of the depression in the thirties, and then did not appear on the timetable again until last year. These limiteds make the trip with one stop in thirty minutes.

Cars are multiple unit and run in two-car trains during rush hours and on busy holidays. The biggest day on record for passenger traffic was Memorial Day of 1924. A statue of Johnny Mitchell, local savior of the miners, was being unveiled at Scanton and cars ran all day on ten-minute headways, with two and three car trains. More than twelve thousand dollars in fares were rung up for the 72,344 passengers handled on the occasion.

Coal mining disputes have hit the road hard during the last year or so, especially in the passenger traffic. These combined with the general decline in carload freight since the end of the war caused the Laurel

Line to file a bankruptcy petition in June, 1949, and it is now in the process of reorganization. It might be possible to cut passenger expenses with one-man equipment but the BRT is dead set against such a proposal and has violently opposed any deviation from two-man operation.

Juice for the interurban line is, and always has been generated by the company itself, through a subsidiary, the Lackawanna & Wyoming Valley Power Co. Since its conversion equipment is designed for 25-cycle current, only the interurban and a few outside purchasers can use it. Lately there have been rumors that the line will abandon its power plant and purchase its juice locally, with new mercury arc rectifiers used to aid in converting the city current to L&WV use. However, the present financial condition of the company is such that any such change is improbable.

All Laurel Line cars in use now are steel. The last two wooden cars, 19 and 21, were scrapped after the Dunmore branch quit in 1945. Single end operation is possible since the terminals at each end of the line are located on loops. Except for the mile-long tunnel at Scranton, most of the run is a combination of heavy fills and high trestles passing through typical mining regions and industrial areas. The Laurel Line unfortunately doesn't present to the rider the beautiful countryside seen from so many other interurban runs. Perhaps it still runs because its revenue doesn't come from trees and flowers, but from residents and industries using the road.

From the time the road was completed and the Dunmore branch constructed there had been no substantial change in trackage until the branch line was abandoned in 1945. In 1946 there was a three-mile freight spur constructed off the main line to a General Electric plant near Minooka. Overhead trolley wire carries power along this spur. Since it was completed several industries have located on it.

The present plight of the road is shown by the annual deficit in net operating income, which in 1949 reached the unhappy figure of $97,383.00. The recent coal strikes were largely responsible for the size of the deficit. The costs of reorganization have not added, either, to the road's income. The receiver and his attorneys all have to be paid. Moreover, for a twenty-mile road, it is really top-heavy with brass. Few interurban roads can claim a general manager, superintendent, general freight and passenger agent, master mechanic, power house supt., roadmaster and auditor, all earning $750 per month *or more.*

Opposite page: **Rocky Glen Park customers disembark at trolley shelter. Overhead ramp connects station with grounds**

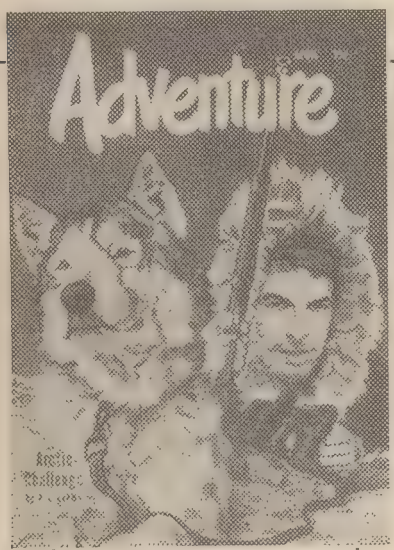
Right: **Interior of 32 has partitioned smoking compartment; is finished in pleasing combination of white, buff, and grey**

William F. Ellis

In the face of decreasing revenues and the uncertain picture in the anthracite mining fields, this line is at the crossroads. It must either economize drastically to cut down its annual deficit, or else throw in the sponge and let it run itself into the ground as so many other juice lines have done in recent years. Unfortunately, there doesn't seem much hope of cutting down the high cost of personnel, and with the BRT dead set against one-man operation, hopes of economy seem remote.

There is no good paralleling highway which could compete with the road, but if it continues in its present course, on some unhappy day in the future, we may see the whole roadbed turned into a Scranton-Wilkes-Barre highway.

The Laurel Line could handle plenty of passengers and it is so well constructed that, were there enough freight and passenger business, it could easily get out of the red, even with its heavy overhead expenses. The new spur constructed in 1946 was, perhaps, a start in the right direction. But there must be many more such improvements before the future of the line can be assured. We can only wait and see.



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ROSTER OF EQUIPMENT

Number	Type	Builder	Year	Notes
1-10*	Passenger	Jackson & Sharpe	1904	Scrapped
11-23*	Passenger	Stephenson	1906-7	Scrapped
31-34	Passenger	Osgood-Bradley	1924	
35-36	Passenger	" "	1925	
37-39	Passenger	" "	1928	
101-104*	Combine	Jackson & Sharpe	1904	Originally Nos. 11-14; scrapped
111-113*	Combine	Stephenson	1906-7	Scrapped
114-115	Combine	Osgood-Bradley	1925	
116	Combine	" "	1928	
201-204	Express	Jackson & Sharpe	1904	Scrapped
301	Flanger		1904	
401	Elec. Loco.	Westinghouse	1896	Bought second-hand in 1904
402	Elec. Loco.	"	1907	
403	Elec. Loco.	L&WV	1920	
802	Crane	L&WV	1919	

Passenger cars 1-23 and Combines 101-113 are of wooden construction.

Carbarn Comments

Steve Maguire

HOPES of the Public Service C. T. in New Jersey, to force abandonment of its remaining railway lines now running out of the Newark subway, and thus adding many more buses to already jammed downtown Newark streets, recently received a setback when the County Board of Freeholders, in a report made by an engineering firm, was told that the solution of the downtown congestion and the best utilization of the present subway, could be accomplished most efficiently by the use of PCC cars running in the subway and connecting with intersecting bus routes along the line. This would eliminate the need for the many bus runs to continue into the downtown portion of Newark, where the traffic congestion is already a serious problem.

Discarded by the report were PS plans to put buses in the subway after it was paved over. Instead railway cars would operate on a 30-second headway, bringing the passengers to the downtown section in a fast, safe manner.

Just prior to this report the PS had tried to push a scheme to bus all of its present trolley routes and retain only the subway until its lease expires ten years hence, running just an occasional subway car to fulfill its obligations under the lease, and apparently trying to force the city and county to accept its own plan for nothing but bus transportation.

The PS officials were stunned when the present recommendations were made, throwing a monkey wrench into their pig-headed plans for nothing but buses, regardless. These plans were originally made in the thirties by an official named Schreiber, since deceased, but have been followed closely along the same antirail pattern in years since.

When the plans were brought to the attention of PS Vice-President James P. Symington, he could say nothing in favor of them, brushing them off as impractical (sure, any rapid transit would be *impractical* to a corporation bent on the use of buses alone for nearly twenty years)

Orange St. is only grade crossing on Public Service's Newark subway line. Orange line surface cars enter and leave subway on track at left

J. Seaton, 216 - 6th Ave., Watervliet, N. Y.

Fulton and River Streets' intersection, Troy, N.Y., was a busy spot in 1897, with 8-year old Troy & Lansingburgh Ry. adding the clang of its streetcar gongs to the clatter of horseshoes on the cobbles. Stubby trolleys carried impressive legend *U. S. Mail Line* on monitor roof ends

and an inconvenience to people now using the buses. Symington, as expected, was especially critical of that part of the plan stating "because buses carrying the great mass of people are impeded by parking and double parking, the buses ought to be taken off the streets".

It somehow seems to us that we heard that same excuse from PS men some years ago when they spoke of the evils of rail transit, explaining how, since it was double parking that so often blocked car tracks, even though it was not the trolley's fault that they were held up, yet for that reason they ought to be taken off the streets. Now it seems PS men are talking out of the other side of their mouths.

For those interested, the engineering firm that made the report is Parsons, Brinckerhoff, Hall and MacDonald, of New York City. Apparently they were free from the control of the large corporate interests, since their report was evidently based on a fair, open-minded appraisal of the needs and problems of the City of Newark. We express our thanks to the many readers who brought the news to our attention, Ernest Borgia, Newark, N. J., Paul Hintlemann, Red Bank, N. J., Harold Danker, Jersey City, N. J. and others.

* * *

NEW PCC cars are on order in several more U. S. cities. Municipal officials in San Francisco have recently ordered 30 more cars at a cost of one million dollars, for use on the Twin Peaks Tunnel lines, routes K, L, M and N. In addition, more trackless trolleys were ordered by the city management, we learn from John Hillman, 314 University Ave., Los Gatos, Calif.

Wayne Leedle, 3745 S. Grand Ave., Los Angeles 7, Calif.

Toonerville Trolley shunts LA Transit Lines' cars around the shop yards

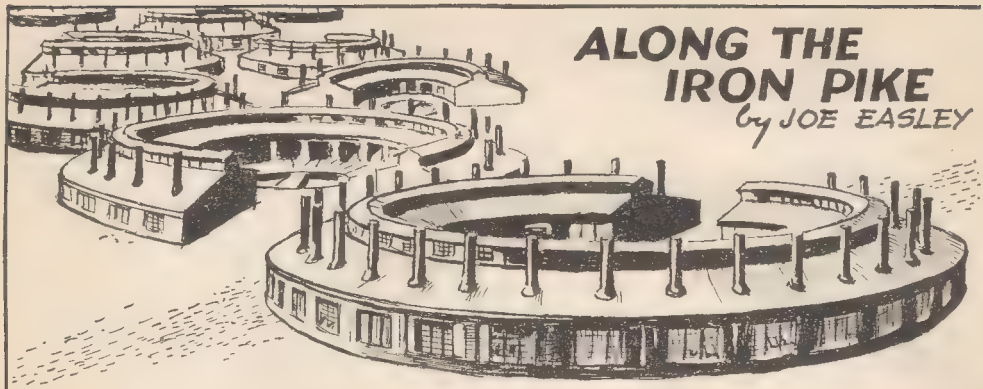
Boston's municipally-owned railway lines will have 50 new cars, these to be built by the Pullman Standard Car Co. at Worcester, Mass. according to a report from Ray McMurdo, Spencer, Mass. These cars, too will be of the PCC type.

The first of an order for 200 elevated-subway cars for Chicago transit lines, has arrived, says C. F. Komrska, Jr., 2252 South St. Louis Ave., Chicago 23, Ill. These cars are constructed very much along the lines of PCC cars, but have door-level loading and two sets of doors on each side, spaced for quick loading and unloading. They carry standard PCC type standee upper windows.

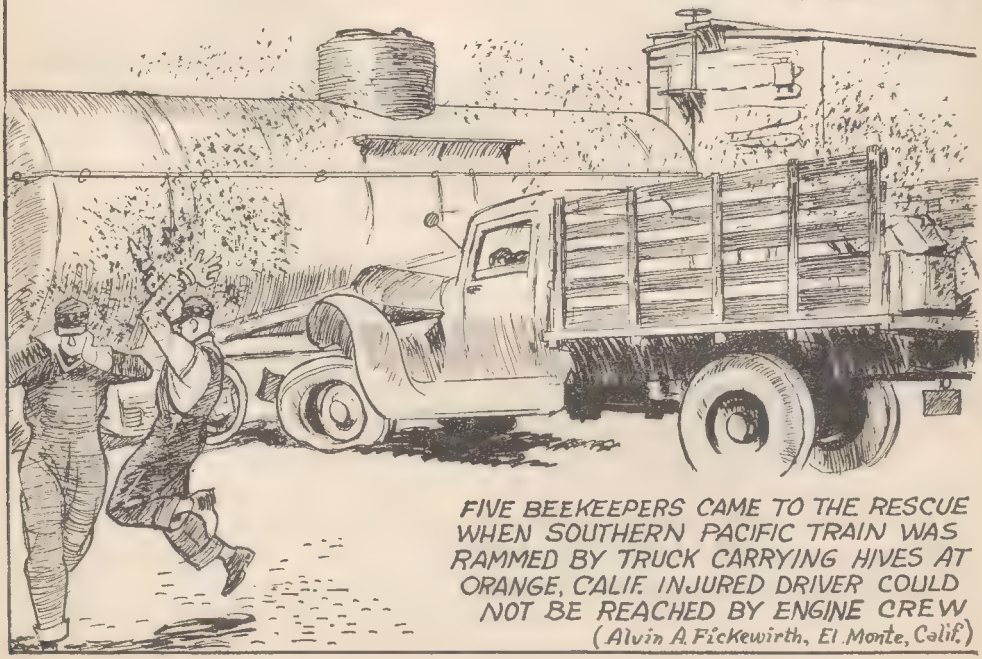
Top speed of the elevated cars is 45 mph., about the same as the PCC. They operate in pairs, thus eliminating the need of more than one motorman's cab on each car. The remainder of the order of 200 is expected in the Windy City by May.

ALONG THE IRON PIKE

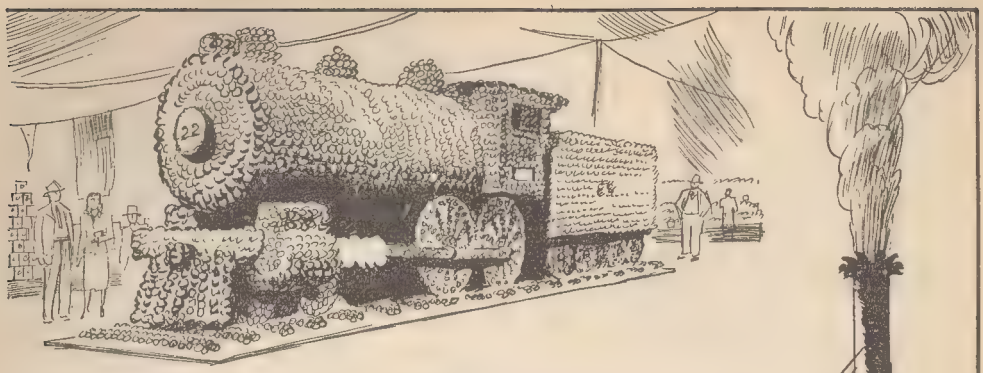
by JOE EASLEY



CANADIAN NATIONAL OPERATES 230 ROUNDHOUSES STRATEGICALLY LOCATED THROUGHOUT ALL 10 PROVINCES OF CANADA (CNR release)

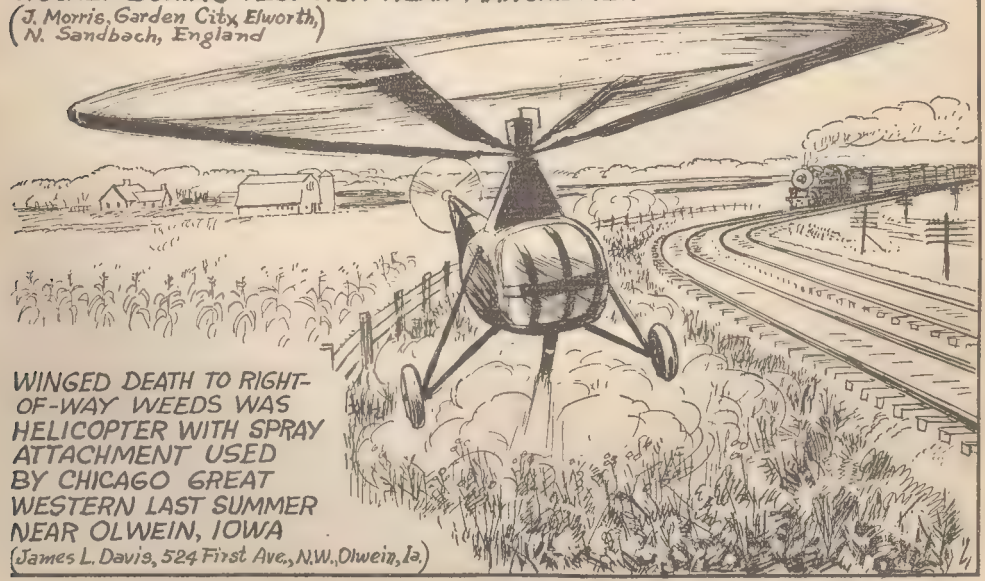


FIVE BEEKEEPERS CAME TO THE RESCUE WHEN SOUTHERN PACIFIC TRAIN WAS RAMMED BY TRUCK CARRYING HIVES AT ORANGE, CALIF. INJURED DRIVER COULD NOT BE REACHED BY ENGINE CREW (Alvin A. Fickewirth, El Monte, Calif.)



APPLE-ACHIAN TYPE? THIS LIFE-SIZE 8-WHEELER WAS BUILT OF CALIF. FRUIT FOR THE SEBASTOPOL APPLE FAIR
(Harry F. Thomas, 194 Water St., Stonington 1, Conn.)

FIRST FATAL CASUALTY ON A PUBLIC RAILWAY WAS WILLIAM HUSKISSON, MEMBER OF PARLIAMENT FOR LIVERPOOL, ENGLAND. ON SEPTEMBER 15, 1830 HE WAS STRUCK DOWN AND KILLED BY GEORGE STEPHENSON'S "ROCKET" DURING TEST RUN NEAR MANCHESTER
(J. Morris, Garden City, Elworth, N. Sandbach, England)



WINGED DEATH TO RIGHT-OF-WAY WEEDS WAS HELICOPTER WITH SPRAY ATTACHMENT USED BY CHICAGO GREAT WESTERN LAST SUMMER NEAR OLWEIN, IOWA
(James L. Davis, 524 First Ave., N.W., Olwein, Ia.)

Rule 99

THE FIRST SNOW of winter was falling gently on the Ozark hills. In the yards of the KCO&G, a fast passenger jack backed down Track 1 and coupled lightly into sixteen white reefers loaded with bananas, long since due in Kansas City, four hundred miles to the northwest.

The head brakeman coupled the air hose. Air poured back through the pipes into the 709 caboose where Eddie McIntosh was hanging his markers and getting set for a highball run.

Eddie was a wiry little shack, young, swift of foot and not slow in the head. Fed up on swinging a hoe in a patch of postoak sprouts and living on hog meat, hominy, corn bread and molasses, he had deserted his father's rocky hill farm and gone swinging a light on the railroad.

Eddie McIntosh's washout signal couldn't save the banana freight

E. S. DELLINGER

Thus far he had not regretted his decision; the life was hard but Eddie loved it. He had long since decided that he would make it his life's work, unless the fates decreed otherwise. Until this night, fortune had beamed upon him. At twenty-three, he had passed his conductor's examination and though he had made only a few trips in charge of a train, he could envision himself in blue and gold, strutting the aisles of the *Ozark Cannonball.*

Before the pressure was up on the way-car gage, conductor Bill Caroon came briskly up the steps. Caroon was old. He had been running a train when World War I broke out. His hair was white, his thin face weathered and seamed. His long bony frame was swathed in a gray pepper-and-salt suit with the unbuttoned vest wide open to the penetrating force of the snow storm.

He laid his train book on the desk, set his lantern on the floor and handed Eddie a lone tissue sheet with its clearance card.

"We're running extra tonight, son," he said briskly. "We've got right over everything but the varnish. We're on the usual five-hour schedule, but we were due out of Tiber three hours ago. That leaves us with plenty of time to make up. And with Ace Hollenbeck whipping the old 157 on the back and that fool Jim Brown chasing us with another train of over-ripe bananas, I have a decided feeling we're not going to be three hours late when we get to Stringfield."

The old freight skipper chuckled expectantly. Eddie knew why. Ace Hollenbeck was a reckless young daredevil. He

was in the height of his glory when he could get out of Tiber on a train of bananas three hours late on a fast schedule. If he made up less than an hour on the hundred forty mile run, he considered himself in disgrace; but if he could trim off a hundred and twenty minutes, he would crow about it till the next fast run.

Tonight he whisked them out of the Tiber yards on what promised to be the run of a lifetime. Before the caboose was by the yard limit board, he had his cars rambling along at a mile a minute; and except on sharp curves and up steep grades, he rolled them just as fast as the wheels would turn.

For the first seventy miles, Eddie kept the vigil alone on the cupola cushions. Caroon sat at his desk doing his office work and visited with a young conductor who had caught the waycar as they were leaving the Tiber yards to ride with them to Mountain Grove for Thanksgiving dinner with his old folks.

Ace, the young runner, kept engine, cars and crummy riding the outside rail around the curves and didn't shut off steam falling down the short, steep grades into the narrow valleys across which the engineers had strung the steel of the KCO&G.

Back in the crummy, Eddie watched his charges weave and wobble against the glow from the firebox door as the fireman swung it, feeding in the coal. The cupola rocked and swayed. The order clip on its nail in the cupola sill swung like a pendulum. The lantern hanging beneath the cupola window bumped against the wall and threatened to jump off its nail and go flying out into the right-of-way.

It was 10:54 when they rolled into Mountain Grove, their trip half through. They had made seventy miles in 84 minutes and had climbed the controlling grade of the division. Barring some unexpected delay, they would meet No. 5, the southbound *Cannonball* at Hardwood, and go into Stringfield less than an hour late on their schedule.

Mountain Grove was the mid-division coal and water stop for the hotshots. Very seldom did an engineer take even a belated banana train through there without filling his tank. Hollenbeck stopped that night. Although trains were protected by yard limit boards, Eddie threw off a burning red fusee as he ran by the switch to hold Jim Brown in case he came blaring in behind them through the curtain of eddying snow.

That fusee was a wasted one. Hollenbeck stopped twelve minutes while he oiled and inspected his engine and the fireman took coal and water. Eddie and the head brakeman looked over their train. They found no burning journals, no broken flanges, no dragging brake beams. Their snow-covered reefers were running perfectly.

THE CONDUCTOR went into the telegraph office to find out what trains were ahead of them and what ones close behind. He brought back another lone order.

It read: "Number 5 eng 32 wait at Macon until 11:40 Hardwood 11:47 for two westward extras engs 157 & 142."

It was ten miles from Mountain Grove to Hardwood, sixteen into Macon. Eddie looked at his watch. It showed 11:02. Because the track went down a three-mile hill to Whetrock River and up a three-mile hill to the flats beyond, the hotshot passenger schedule was sixteen minutes into Hardwood, twenty-three to Macon.

A 11:04, the engineer whistled in his flag. Eddie swung a highball from the left caboose platform, the conductor from the right. Hollenbeck jerked his whistle cord in two short, sharp blasts and set the wheels in motion. The conductor and brakeman went into the waycar.

Eddie said: "If Ace works steam all the way down the hill and runs 'em out to the flat beyond the Whetrock, we'll go to Macon for the varnish."

The conductor nodded approvingly. He liked to hear a brakeman he was training figure meeting points correctly. It meant railroad savvy.

Eddie inquired about Jim Brown and the banana train behind them.

"Jim's not doing so good tonight," the skipper answered in a tone of mock sadness. "I don't know what his alibi will be, but he was twenty-eight minutes behind us when he came through Wild Springs."

Wild Springs was the last open telegraph office to the east. Eddie looked at his watch and figured running time.

"It looks like Jim will meet the round-topped cars here at the Grove," he reckoned.

"He sure will unless he runs this tank," the skipper agreed.

Eddie filed the order and climbed into the doghouse to watch his train. He was joined here shortly by the conductor.

It was in these night sessions in the cupola that old conductors used to teach young brakemen how to railroad. This night's lesson was soon in progress. Its subject was Rule 99. Its illustrative example was a wreck which had occurred the previous night on the division to the south involving their banana train and the one behind it.

Briefly the conductor sketched the details of the smash which he had gathered before leaving Tiber. The two banana trains, running as second and third sections of a passenger schedule had left terminal ten minutes apart. Eighty miles out, the head one had stopped on straight level track to cool a hot pin on the engine. The engineer had whistled out his flag.

Because the track was straight and level and the night was clear, the flagman had done his job the easy way. He knew that an engineer on a following train could easily see his signal for a mile, so instead of going back forty-five hundred feet, as Rule 99 required, and placing two torpedoes on the rail as a warning signal, he had gone back eight hundred feet, placed one gun on the rail, and sat down to wait.

The train had showed. The flagman had flashed a red fusee. The engineer had not been looking out. No one on the engine had been looking out. No one knew until the pilot wheel exploded the torpedo eight hundred feet behind the caboose that a flag was out against them. You can't stop a mile-a-minute freight train in eight hundred feet. This one had plowed into the rear of the stalled freight and smeared bananas all over the country. It had also crushed the life out of a conductor working at his desk, and a fireman who could not see how to hit the dirt.

Eddie expressed the opinion that if flagmen always obeyed the letter of Rule 99, there would be no rear end collisions. Conductor Caroon did not agree.

"If every flagman obeyed the letter of Rule 99," he corrected, "a conductor could never get his train over the road. Rule 99 is a guide. It is not an ironclad law to be followed slavishly. There are so many angles to a flagging job that no rule could cover them all.

The conductor paused to let his statement soak in, then continued:

"When you go out to protect the rear of a train, you have to consider the track, the weather and the man behind you. Having considered all the factors in the situation, you must then use good judgment as to how far to go and how long to stay. If the grade is up and the weather is fair, you can flag short. If the grade is down, or if there is a remote possibility of another train closing in behind you, you must go and keep on going.

"One thing you must always do, Eddie, is to get those two warning torpedoes down far enough back so the engineer can get his train under control. That's one of the most important factors in any flagging situation—give your engineer plenty of stopping room. Then when you're called in, you must judge whether to obey your call or to stay out and stop the man behind you. If you judge rightly and the engineer comes through with his part, you will never get hit in the rear."

THAT WARNING was still ringing in Eddie's ears when Ace whistled for Whetrock Bridge. He had been working a light throttle then and doing all of eighty. A hundred feet beyond the bridge,

his mad pace was rudely checked. Emergency air caught the wheels. The hand on the conductor's gage turned backward, stopped against the zero peg and stayed there.

"Hold tight!" the conductor muttered tensely. "That young fool has either broken a knuckle, pulled a lung or turned a reefer over."

They braced themselves to take the shock of possible derailment. The cars rolled on, slowing rapidly. Eddie did not wait for them to stop. He leaped down from the cupola, strode to the rear door, caught up red light, fusees and torpedoes as he went, and when the speed had fallen to eighteen miles an hour, loped off the step and started back along the train at a swift trot.

He counted telegraph poles to measure his distance. In obedience to Rule 99, he stopped fifteen hundred feet behind his train, and fastened one torpedo to the right rail. One torpedo exploding under a wheel is the signal for an engineer to stop his train at once.

In further obedience to this flagging rule, he hastened across the bridge and up the grade beyond. Three thousand feet from his one torpedo, forty-five hundred from his train, he strapped two torpedoes to the rail. Two torpedoes exploding at short intervals is a caution signal. It tells the engineer to reduce speed and get his train under control so he can stop it at once if he sees or hears a stop signal.

Eddie didn't lose any time. Still travelling at a swift trot, he started back to the bridge. As he ran, he mentally surveyed the situation. In it he could see no cause for uneasiness or alarm. Apparently he was out on an ordinary flagging mission, his sole duty to protect the rear of his train.

Rule 99 told him he should return to his one torpedo and remain there until his engineer called him in, or until he was overtaken by a following train. He thought that he would not be overtaken, reasoned that Jim Brown would gain no time on them except what they themselves had lost taking water at Mountain Grove. If Brown had been twenty-eight minutes behind them at Wild Springs, he would have been eighteen minutes behind them when they had stopped beyond the Whetrock.

According to this reckoning, Brown, if he had been holding the pace Hollenbeck had set for him, would very soon be whistling for the mile at Mountain Grove. With a meeting point between him and the next water tank, Eddie did not believe Brown would assume the risk of running the one at Mountain Grove. He reasoned Brown would take water at the Grove and stay in siding there for No. 5. It was sound reasoning, as far as it went.

But no flagman ever knows what is going on in the cab behind him. Brown and Hollenbeck, both men in their middle twenties, were conceded to be the two fastest runners on the Ozark Division. There was sharp rivalry between them; neither liked to lose the smell of the other's smoke when they were wheeling the hotshots through the hills.

Topping Wild Springs hill, Brown sent his fireman back to measure the depth of the water in his tank.

"It looks like a third of a tank," the tallowpot told him when he returned to the cab.

Brown thought fast. He said:

"The dispatcher will probably give these bananas a few minutes on No. 5 when we get into the Grove. If the board's out there with a "19" we'll highball the tank and go to Macon for water."

"If you do and get laid out, you'll have to cut and run for it."

The fireman was cautious; the engineer had made his reputation flying in the face of chance.

"If the board's out," he said, "we'll run it. If he gives us twenty minutes on No. 5, we'll go to Macon for the meet. If he gives us five, we'll go to Hardwood and take water at Macon."

A few minutes after Eddie set his guns on the hill, Brown whistled for Mountain Grove and went into the yard limit under control. The order board was red. He

whistled for a signal. The operator "winked" the board at him, cleared it and set it back to red, the signal that he was to receive a helping order. The brakeman grabbed the tissue on the fly and passed it to the engineer.

Brown read aloud the same order which Hollenbeck had picked up there a few minutes before: "Number 5 eng 32 wait at Macon until 11.40 p.m. Hardwood 11.47 p.m. for two westward extras engs 157 & 142."

He looked at his watch. The fireman looked at his.

"Are you goin'?" The smoke artist thought the time was short.

"Sure I'm goin'." The ballast scorcher *knew* it was short. "If we stop to take water, we're stuck here for them. If we go to Hardwood for them, we can take water at Macon."

He dragged the whistle cord in two emphatic blasts which told the men on the rear he was running the Mountain Grove tank.

EDDIE WAS trotting over the approach to Whetrock Bridge when Jim blared out of Mountain Grove. The bridge itself was a hundred feet long. No part of it was floored solid. Between each two ties was a gap of seven or eight inches. Wet snow had been falling lightly for more than three hours, and three inches of it lay deep in a round-topped rick on each crosstie, making them slick as soap.

Eddie went out on the bridge, taking three ties at a stride. His engineer had already called him in. He was eager to get back to his train and get it in motion. Time on their wait order was rapidly running out; unless they made good headway pulling out of the valley, they would have to flag into Hardwood against the *Ozark Cannonball.*

Trying to run over this bridge was his first blunder. Twenty feet from its western end, his right foot struck a tie rounded on the top. He stumbled and fell face down in the track. In his frantic efforts to save himself from injury, he snuffed

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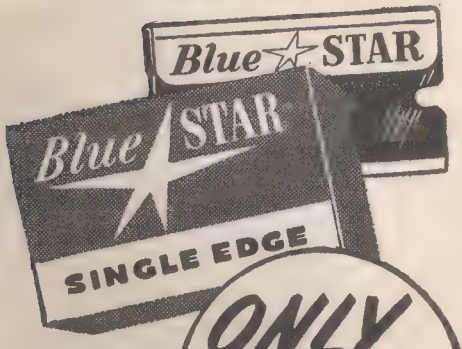

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out the red light and the white one. But that was not the worst of it. Clutching for the rail to steady himself, he lost his grip on the two red fusees and they dropped with a one-two splash into the cold blue waters of the sluggish river.

He re-lit his lanterns and limped on across the track. For the first time since he had begun to consider himself a competent railroad man, he did not know what to do.

The fusee is used to space trains following each other on the same track. It is a paper tube filled with a combustible powder which will burn for a given length of time. The ones Eddie had carried would burn for ten minutes, then go out. An engineer seeing a red fusee burning beside the track should, according to Rule 99, stop his train and wait until the fusee burns out before proceeding.

Rule 99 assumes that a flagman out on a mission will always have one fusee. It requires him to go out with two. It does not tell him what to do in case he drops all of them in a river. Or does it? The rule says: "When in doubt, pursue the safe course."

Eddie was certainly in doubt. If Brown took water at Mountain Grove, he would be compelled to stay there for No. 5 unless the dispatcher gave him still more time on them. Even then he would not be along here for fourteen or maybe eighteen minutes. That should give Eddie ample time to return to his train and get it out of the way. Once on the caboose, he could secure, light and throw off another fusee.

If Brown took water at the Grove, it would be perfectly safe for him to obey his call and return to his train. But Brown might not take water at the Grove. There was a thousand to one chance that he might run the tank and gamble on going to Macon for water. In that case he could be along here in four or five minutes. Eddie did not think he would do it.

Nevertheless, some impulse stayed his hand when he reached down to pick up his one torpedo. In his mind sounded the warning: "When in doubt, pursue the safe course." The absolutely safe course, this warning voice told him, was to remain at his post, stop the train behind him regardless of when it came and ride it home.

He straightened up, listened intently. No sound of wheel or whistle came to him out of the east. He peered into the west. Two blobs of crimson mist around his markers fifteen hundred feet away showed dimly through the snow. If he could see his markers, he reasoned, an engineer following him could see a lantern waving a washout stop sign an equal distance. If Brown came down under control, fifteen hundred feet was stopping room.

Eddie left the one torpedo. He strapped another on the third rail length ahead of it to serve as a repeated warning; then he struck out on a dead run for the two red markers.

He gave a highball when he was a hundred feet from them. The conductor passed it. The caboose wheels were moving when he caught the grab iron.

The conductor was on the rear platform. As Eddie came up the steps, he bellowed: "Why in the hell didn't you leave a fusee at that bridge. That fool may run that tank, and if he does—"

Eddie panted his explanation, dashed into the caboose, grabbed a fusee from the rack and darted back to the platform. As he was tearing the cap off the head to light it, he heard a sound which all but stopped the wild beating of his heart. It was the sound of two torpedoes going off and two short blasts of an engine whistle answering the signal.

Jim Brown had run the tank. He was falling down the hill less than a mile behind them, and he was falling fast.

Old Bill yelled: "Get off and get back there, quick! Run! Run!"

Eddie didn't need the warning. He had already scratched the top of the fusee with the sanded lighter. It was spreading its blood-red light on the fresh snow. He hit the gravel and raced back down the track, down toward the bridge where his fusee should have been burning.

Even as he ran he became aware that

he had erred in judgment. From his flagging station, he had clearly seen his markers through the mist of thin snow. He had reasoned that if he could see the markers, an engineer could see a burning fusee.

HIS REASONING had been correct thus far, but he had left out of consideration the uncertain factor of the weather. In the brief interval since he had caught the caboose, the storm had suddenly changed and a sudden flurry of heavy snow had burst upon the hills. When he was a hundred feet behind his caboose, the flagman could not see the markers on his caboose. They were completely blotted out in the blinding swirl. If he could not see them, Brown could not see them, nor see the fusee he was carrying—not in time to stop his train. He thought they were going to hit.

Brown, too, had erred in judgment. He had not brought his train under complete control. He had shut off steam, reduced speed from eighty miles an hour to fifty, and come rambling on. He was making at least that when he exploded the warning guns at the bridge. He answered this signal, too, but he did not slow down. He was drifting along at fifty when his headlight blossomed out of the snow a hundred feet away. Eddie washed him out, kept washing him out, even when the engine had gone by with brakes in emergency and wheels skidding fire.

The flagman waited for the crash as time stood still. Through the blinding snow, Old Bill could not possibly get a signal to his engineer; but it would not have mattered. Ace, unaware that he was about to get hit, was using sand and steam trying to get his train out of the hole and make his meet with No. 5 at Hardwood. Urging the 157 to the utmost, he had pulled his train two hundred feet and his speed was rapidly increasing when 142 rammed him from the rear.

There were no casualties. The conductor had loped off and gone out through the right-of-way fence. Brown and his fireman had joined the whirling snowflakes via their respective gangways.

There was property damage enough to pay a flagman's wages for many years and defray the cost of many delays to over-ripe bananas. The waycar folded up like a cracker box. Two cars split open and filled the right-of-way with bananas. No. 142 lost her headlight and her pilot had stood on the ties with a hole in her smokebox big enough for a horse to crawl into; and five of the other fourteen cars were on the ground.

The investigation was brief, its results a foregone conclusion. The local chairman of the Brotherhood who represented Eddie pointed to his perfect three-year record in the service of the company, three years of careful, conscientious service without a single blunder. Every man on both crews testified to the sudden fury of the snowstorm which had burst upon them at the critical moment.

The superintendent wanted to keep Eddie, but he himself was on the spot. There had been three disastrous wrecks on his division within the year, all caused by the mistaken judgment of an engineer or a flagman.

"I'll grant you the snowfall increased suddenly," he conceded. "I'll grant that you could not avoid the slip of the foot which sent your fusees into the river; but even so, if you had obeyed the provisions of Rule 99, this wreck would not have occurred. You did not obey those provisions to the letter. Your rules, if you take the trouble to understand them, contain this sentence: 'When in doubt, pursue the safe course.' "

Eddie started to enter a protest, but the official waved it aside.

"You were in doubt, were you not Mr. McIntosh," he demanded.

Eddie admitted that he was.

"You knew this engineer had a perfect right to run this tank if he thought he had sufficient water to take him to the next one?"

"Yes, I did."

"You even debated within yourself whether to stay or return to your train. Isn't that correct?"

"Yes sir; it is," confessed the flagman.

"Then in that case, the proper thing for you to do was to stay at your post and pursue the safe course. The only thing I can do is to wish you better luck in your next job if and when you land one. You may come to the office tomorrow for your service letter and final check."

THE LAST snow of winter was falling on the foothills of the Rockies. In the late afternoon, Eddie McIntosh helped other TC Ranch punchers haze twenty cars of fat steers into the shipping pens of the Nebraska Western at a little cowtown east of the divide.

Eddie was not punching cattle from choice. Fired off the Ozark line, he had followed the moonbeams back and forth between Mexico and the Maple Leaf Dominion. Railroad business had slumped. For the few men required to fill emergency vacancies, trainmasters were picking and choosing from an endless line of applicants. Not one had seen fit to hire a man whose service letter read: "Discharged for improper flagging, resulting in a rear end collision."

By the end of winter, good brakemen were packing lettuce in the sheds of the Imperial Valley, chopping big trees in the forests of the Pacific Coast, or living on mulligan stew in the jungles of the far Southwest.

In March, Eddie had given up the quest for a railroad job and had gone to an employment agency in Denver. They had shipped him out to a job as handy man and emergency rider on the TC Ranch.

For four endless weeks he had been wet-nursing awkward white-faced bovine babies too young to find their own, feeding grain and hay to youthful bovine aristocrats being readied for the market, and lifting lean, tottery bovine grandmothers out of quagmires into which they had wandered in search of food or drink. This job was no more to his liking than had been wielding a grubbing hoe in the sprout patch on his father's rocky Ozark acres.

Because it offered subsistence through the lean months, he was staying with it until strawberries, cantaloupes and new potatoes began to roll east across the continents from the fields of southern California. He had told himself every hour that when the first solid trains of yellow reefers began to roll, he was getting out of it and back onto the railroad where he belonged.

Just how he would manage he could not foresee. Some trainmaster who needed brakemen to keep his trains in motion might take him on. He might forget that he had ever worked on a railroad and hire out as a student. But whatever the way, he was going back.

Working through the late afternoon and early evening, the crew cut steers into carload lots and prodded them into the slatted cars. Liquor flowed freely. Long before the work was done, part of the men had disappeared from the pens and others had long since passed the stage of full efficiency.

Cold and wet though he was, Eddie left his liquor in the bottle. There was a rule called "G" on the pike where he had done his railroading, which said that railroad men should not drink liquor while on duty. Eddie had obeyed the rule on the KCO&G; he lived up to its precepts here.

When the last car was loaded and sealed, Old Tom Crandall strode to the fire where Eddie was drinking black coffee with two men who could still walk straight and talk without mumbling.

Crandall was a cantankerous old cattle baron, owner of a spread greater in area than some Eastern states. He spoke kindly to cattle and horses; he spoke seldom to human hirelings who cared for them. He had never recognized Eddie other than with a nod of his big shaggy head. His foreman was his contact man.

This night, his big face was hot and crimson. His foghorn voice was tense with emotion. His son and three of his punchers had drunk more liquor than they could hold and were now over in the false front hotel dead to the world.

He planted himself in front of the ex-

railroader, looked him over critically, and said in an accusing voice:

"You're McIntosh, the new man they sent us from Denver."

Eddie admitted his identity.

"Your record shows that you have been a railroad brakeman. Is that correct?"

"Yes, it is." Eddie was proud to admit it.

"I'm going to have to ride to Omaha with this stock myself. I want at least one sober man to go along with me, and help look after the cattle. Can I depend on you?"

Eddie could think of no happier way to earn his wages than by riding a train of livestock into Omaha, even though he was only a puncher of cattle in transit.

"I'd be glad to go with you, Mr. Crandall," he said.

"All right. Have you got any extra clothes with you?"

"No, I haven't."

The cattle baron opened his wallet, handed Eddie a twenty and a ten, took the ten back and replaced it with another twenty.

"Expense money," he said tersely. "It won't be taken out of your wages. Better go into a store somewhere when we stop and buy yourself a change of clothes."

Eddie thanked him and transferred the cash to his own flat wallet. The rancher went into the chuck wagon and brought back an old skeleton-frame railroad lantern burning dimly.

"Here," he snapped, "you take this. Maybe you can make the damned thing burn. Nobody else on the ranch can. We'll need it to look over the stock, because it sure is dark."

Eddie took the lantern. No wonder it would not burn. Someone had filled it with kerosene. The globe was black with soot. The wick was charred and smoking. He dug a clean bandana out of an overall pocket, wiped the soot off the globe, pinched the cinder off the wick, lit it and went out to look over the stock while they were waiting for the arrival of the train which was to take them east.

This train had been made up in the

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late afternoon in Custer, the division point thirty miles west. Its running order read: "Engs 1232 & 1236 coupled display signals and run as 2nd Number 156 Custer to Mainyard." Among other orders, it carried one which read: "2nd Number 156 engs 132 & 1236 coupled run two hours late Custer to Barton, and one hour and thirty minutes late, Barton to Mainyard."

Second No. 156 came before Eddie had finished looking over the stock. He observed that it was drawn by two light *Mikado* engines. The head one was foaming furiously from a big drink of alkali water. There were two green lights beside its headlight and two green flags flapping in the brisk north wind.

THE TRAIN pulled down the main line and stopped the caboose near the middle of the stock. Eddie saw the flagman come out on the rear platform, pick up a red lantern from the floor and start down the track. He walked back ten car lengths, strapped two torpedoes on the rail, left a fusee burning beside them and returned to his caboose.

There was apparently no reason why he should have obeyed the letter of Rule 99 by going back nearly a mile. The track was straight and level. Even with the thin snow falling, fusee or red light could be seen for a full half mile.

Eddie recalled the night when he had been flagging the banana train at Whetrock bridge. He remembered the sudden burst of falling snow which had blotted out his tail lights at a hundred. Not being the conductor, he offered neither criticism nor advice; but he told himself that with a short flag artist on the rear and another stock train on his tail, he would not spend his night in slumber.

The head brakeman backed the engine into the stock track and tied it into their twenty cars. When the air was pumped up, he took them out to the main and coupled them to twenty-four other cars of stock which they had brought with them.

Eddie rode the head end out and looked over the cars after they were on the train. The steers were stamping and nuzzling the cracks; but there was no commotion. He walked back to the caboose and entered through the front door. The conductor came. The engineer whistled in his flag.

Although the headlight of 3rd No. 156 was then showing, the flagman highballed his own engineer, caught the caboose and tossed off a red fusee to hold the train behind him until he had time to clear.

The caboose was full of stockmen. Crandall had brought only Eddie to look after twenty cars. The other stuff must have belonged to small shippers, because there were twenty men then in the caboose, besides him and Crandall.

Twenty-two men was a crowd in that crummy. The cupola and the trainmen's lockers occupied the forward third of its length. Behind the lockers on the left were a big water barrel and the flat-topped, round-bodied stove. The conductor's chair and table were on the right, and behind these, lined along both walls were lockers twenty inches high filled with an assortment of pins, knuckles, chains, bolts and other parts which might be needed for emergency repair.

These lockers were covered with padded cushions in black imitation leather all worn and soiled. They were intended to serve as seats by day, and by night as bunks for the men who travelled with the stock.

Eddie parked himself between a short fat waddie and a long slim one. Sore from being cooped up in the foul atmosphere, they were quarreling like two tomcats on a backyard fence. The slim one in shirt sleeves thought the caboose was too cold. He kept shoveling coal into the stove. The short one wearing a heavy mackinaw thought it was too hot. He kept getting up, shutting the drafts and opening the door to cool it down.

Tiring of their bickering, Eddie picked up his lantern and went out to the back platform. The snow had ceased falling. Stars were shining dimly through scudding clouds. Cold wind was whipping

snow from the track over the platform.

He rode there fifteen miles. His lantern went out. Aware that they would soon arrive at a regular water stop, he decided to go inside, beg some signal oil from the flagman, fill the lantern and be ready to inspect his stock when the train rolled in and stopped.

Flagman John Callahan was a tall, gangling, hard-faced rail. His chin stuck out and almost met the hooked nose coming down between two close-set gimlet eyes. He didn't look like the type of brakeman who would grant favors to a stockman, but Eddie needed oil.

The waycar floor was now covered with weary men stretched out between the bunks. Going through the caboose, Eddie had to step over sprawled bodies and pick his way among them. He stopped beneath the cupola. Conductor Blanchard was in the right seat, Flagman Callahan in the other. Both peered down into his upturned face. Before he could present his request, the flagman snapped:

"Well, what do you want?"

"I'd like to get some signal oil to fill my lantern," said Eddie.

"Signal oil, hell!" the flagman stormed. "It's bad enough to have you foul-smellin' cow punchers spittin' terbacker juice all over my floor. Look at 'em sprawled out down there so a man couldn't get to the back door to do a job flaggin' to save his soul from hell. Now here you come wantin' me to give you a little signal oil so you can spill it all over the floor for me to scrub out in the mornin'."

Eddie tried to stop him with the recognition sign of the Brotherhood. Old John ignored it. Eddie thought then he was a non-air rail. He spoke a word which should have brought the correct response, but didn't. The old no-bill raved on:

"Now you get back in there an' set down before you fall an' bust your nose."

EDDIE'S FACE was red and his head was hot. He knew and so did everyone else that trainmen on this pike earned their living hauling stock in cars and their punchers in their cabooses. He said:

"Wait a minute, buddy. You don't need to bust a blood vessel. I merely asked for a little oil to fill a lantern so I could go out when you stop and look over my stuff. Your contract don't require you to give it to me. As for my fallin' down and bustin' any part of my anatomy, I'll give you to understand I can take care of myself. I've spent plenty of time riding a caboose over a pike where they run trains instead of draggin' 'em. I've been swingin' a light—"

"Yeah, I know. You've swung a light on the Espee and the Santa Fe. You've clubbed 'em down on Sherman Hill an' rode runaways down Tennessee Pass on the D&RG, an' you've even been night yardmaster at Pocatello! You birds have all been railroadin' ever since you quit wearin' diapers; but if one of you gets your feet jerked out from under you and sticks a splinter in his nose, you sue the company an' they fire a brakeman and a conductor for not seein' that you stayed where you belonged.

"Now get back there an' put your seat on somethin' solid an' keep it there before you get hurt."

Eddie betook himself to the rear end. Old Tom Crandall had appropriated the conductor's vacant seat and had been leaning back against the wall trying to snooze. He was wide awake when Eddie came in.

"What's the argument, son?" he queried.

"Oh, nothing serious. I asked the brakeman for oil to fill my lantern. He blew his top, and I guess I blew mine too."

Eddie grinned and ruefully fingered his empty lantern. Crandall dropped both chair feet to the floor, got up and strode ahead over the rocking deck. Eddie marvelled at the way he held his feet on the waycar floor. He didn't address the brakeman; he addressed the conductor himself:

"Don't you fellows have any lantern oil on your caboose," he inquired with civility.

"Red lantern oil?" sneered Callahan.

"I don't give a damn whether it's red, blue, green, or yellow so long as it will make a light in a lantern. Through no fault of his own, my man got caught here with an empty lantern. He'd like to have oil enough to fill it, if you've got it to spare. We want to look over this stock at Midland."

Crandall had been shipping two trains of cattle a year over the Nebraska Western ever since Blanchard had been running a train there. The conductor came down out of the roost, produced a can of oil from a locker, turned it over to Eddie and told him to help himself.

The rancher returned to his chair and smoked a good cigar. Eddie filled the lantern, cleaned it with cotton waste, lighted it, adjusted its flame and appropriated a narrow space left vacant by a puncher who had gone to bed on the floor.

They rolled into Midland and stopped at the water tank. Eddie hit the cinders and started forward to look over the stock, and Crandall with him. The steers were all on their feet taking life calmly. The rancher was well pleased with their condition. He told Eddie:

"They're sure riding fine. Unless we get a hard jolt, we won't need to look at them any more until we get into Mainyard."

The head brakeman had cut the engines off to take coal and water. They were at the coal chutes when Eddie and his boss returned to the caboose.

Trains at the tank being protected by yard limit boards, rules required flagmen to protect themselves only against first class traffic. The flagman had not gone back, neither had he fully inspected his train. He had gone forward a few cars, felt a dozen journal boxes, then gone across the tracks to an all-night restaurant.

Soon after Eddie returned to the waycar, the flagman came in picking his teeth with a goose quill. Third No. 156 was not pulling in behind them. He lit a fusee, stuck it in the end of a crosstie and stood outside watching.

Third No. 156, also a stock train, pulled in close. Her head brakeman cut off his engine so he could run up and take water as soon as the doubleheader pulled away. They had been stopped twenty minutes. All the stock men had gone out to look after their stock. When they were again moving, these men sat around smoking and talking for a few miles, then one by one they found places on floor or bunker and settled down for the night.

The engineers lost time after they left Midland. The Nebraska Western traverses the land of alkali. The Midland tank was foul with it. Soon the boilers were making more foam than steam. Foam does not give power to lift freight trains over humps, even low ones. Crossing ridges, speed fell off to ten miles an hour or less.

The caboose was hot and stuffy. The twenty-two men tried to make themselves comfortable, some on cushions, others lying flat on the floor, still others leaning against the bunkers smoking pipe or cigarette. Eddie did not sleep. He remembered that he was riding with a man who flagged short and that another stock train was close behind him.

To escape from the foul air, he went out once more to stand on the back platform. The flagging equipment was there —the red lantern with five torpedoes strapped to its guards, two red fusees and two green ones stuck by their spikes in the floor, and a red flag rolled and lying between them.

THE TRAIN BEHIND was overtaking them. Eddie saw her headlight show and disappear three times within a few miles. Because it did not show again, Eddie assumed that the train had taken siding. His conclusion was wrong.

The trainmaster was riding third No. 156 that night. This freight was made up of eighteen cars of short-time cattle, loaded that morning at the chute far to the west. Unless this stock made good time, it would have to be unloaded for feed and water before it reached Omaha. The official had boarded the train to build a fire under the crew.

They had certainly rolled the stuff halfway over the division. Leaving Custer two hours behind the doubleheader, they had overtaken her at Midland. There the official had told both crews that when they went in the hole for No. 5, the third section should run around the second and take their short-time stuff on to town.

Shortly after leaving Midland, third No. 156 had developed headlight trouble. Three times within fifteen miles, her headlight had burned out. The last time, the crew had stopped their train and worked with it twenty minutes. Since they could not repair it, the trainmaster had told the engineer to hang a white lantern on the head end of the engine and run blind until they overtook the second section.

That's why Eddie had not seen the headlight again. He leaned against the rear wall of the waycar listening to the musical clack-clack clackety-clack of the wheels. The twin threads of steel streamed out from beneath the caboose as they turned down the descending grade, then disappeared into the night.

For several miles, Eddie had been smelling the unmistakeable odor of hot grease. The scent was becoming more pronounced. He dropped down to the bottom waycar step on the right and peered forward. Nothing there. He crossed down to the left. Fifteen cars ahead of the caboose, he saw a smoky tongue of flame burst out from the wheels, disappear for an instant, then show again.

"Hot box," he told himself. "I hope these deadheads see it and stop before we burn a journal off and wreck a train."

Evidently the men in the cupola had smelled the smoke or seen the fire. He heard the hiss of air, as the conductor opened his valve to set the brakes.

As the train slowed for its stop, Eddie observed the lay of the land. Viewed in the dim starlight, they appeared to be descending a long, easy grade skirting the north side of a dry wash. This wash had been cut through sand and shale formation by countless floods and summer cloudbursts. On the north side of it, an irregular escarpment rose to a height of thirty feet above the roadbed.

Near the roadbed two hobos had built a big fire of old crossties early in the night. The blaze had gone out, but the half-burned ties still sent forth a curtain of tarry black smoke which the north wind was carrying directly across the track on a level with the top of the train.

The caboose stopped in the cut through the east ridge, a hundred and fifty feet east of the smoke screen. The engineer whistled out his flag. "Hardface" came down from the cupola, glowered at the stockmen stretched out on his floor and unraveled a few yards of profane abuse. He did not try to come back through the car. He filled a pail with water at the barrel, dug a pail of dope, a packing hook and a packing iron out of the locker and went out front.

Eddie thought he might leave the stuff on the front platform for the conductor and go back flagging. He didn't. He started toward the head end along the left side of the train. The conductor made

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a notation in his trainbook, slipped it into his mackinaw pocket, put on his gloves and went down the right.

Tom Crandall came out on the back platform. Eddie asked whether he should go look after the stock.

"No use," the old rancher answered gruffly. "We probably won't be here long, and besides, I think they'll be all right."

He fished two cigars out of his pocket. He handed one to Eddie, bit the end off the other and lit it. Eddie touched a match to his. They smoked for two or three minutes. Eddie kept eyeing the curtain of smoke which hung steadily between them and the track behind. He kept trying to see through it. He could see nothing.

When they had been stopped ten minutes, he said: "Mr. Crandall, I don't like the looks of this situation."

The rancher's eyes were seeing the same thing Eddie's were, but his mind was not reacting as the ex-brakeman's was. He wanted to know what was wrong with it.

"It looks to me like a perfect setup for a rear-end collison," Eddie told him.

The rancher kept his mouth shut and kept right on smoking. Eddie snuffed out his cigar and put it into his pocket. He could do his smoking elsewhere.

"See that smoke behind us?" he queried.

"Sure. There's some bums burning old crossties in that arroyo."

"You don't get it, Mr. Crandall. We're stopped on the main line on a descending grade There's another stock train close behind us. I saw its headlight only a few miles back. Both our conductor and our flagman are over on the train doctoring a hotbox. Either they didn't see this smoke, or if they did they didn't see what it was doing to our train.

"They didn't put out a flag, nor throw off a fusee. They must be figuring that if third No. 156 overtakes us, the engineer will see our tail lights and stop before he hits us. Ordinarily he could unless he's asleep, because the track's straight for miles back there. Tonight he couldn't, because that smoke's hanging right on the level of our tail lights. It completely shuts off the view of them to the rear. If he comes rambling along here at fifty miles an hour, he'll never see this caboose till he's in a hundred feet of us. He'll ram right into us and kill every man in that waycar."

THE STOCKMAN woke up. He had six hundred head of choice, fat steers over on the head end. He didn't want to see them butchered in a railroad wreck. He wanted to sell them in Omaha. He threw away his cigar, glanced across the dim-lit platform at Eddie and asked anxiously:

"What do you propose to do about it? Go tell the conductor?"

"No, if that train's as close as I think it is, there's no time to tell the conductor. I'm going back behind that smoke and do a little job flagging."

"Have you the right to do that?"

"No. It's the duty of the train crew to protect their train. They're falling down on their job. I'll take my own lantern and some stop signals and go back. If a train shows before this engineeer calls his flag in, I'll stop him before he hits us. If he don't show, I'll leave a couple of guns on the rail and a fusee between them. That will hold everything till we have time to get out of here."

"And if your train runs off and leaves you?"

"I'll flag the first thing along and ride it till I overtake you."

"Will the engineer carry you?"

"He will. He'll think I'm the regular flagman unless he compares notes with this crew. And take it from me, if he does that they'll all keep their mouths discreetly shut, because if a trainmaster finds out these boys went off and left a stock train on the main line with a smoke screen behind it and no flag out, he'll fire the whole bunch."

While Eddie talked, he had slipped inside the door, helped himself to two red fusees and a handful of torpedoes. With-

The rancher was about to lose a hand to the grateful trainmaster, who thought cowpuncher Eddie looked familiar

out touching the flagging equipment on the platform, he hit the track and started back. He didn't let the snow melt under his feet. He hastened through the curtain of smoke and looked back toward the caboose. As he had expected, not a sign of red was showing through it. At two hundred feet, he couldn't even see the tail lights.

He turned and peered into the west. Stars were sparkling in the black vault of the western sky. There was no sign of a headlight. He wondered if something had happened to the third stock train. Could it be that they had stopped to load and pick up more cattle?

He sauntered back a hundred feet. He saw a light. It was not a star. He decided it must be the light in a farmhouse window. He was almost persuaded to return hastily to his train. Perhaps, after all, the crew knew what they were doing. Perhaps they knew No. 156 had been held up at a way station back along the line somewhere.

He kept listening intently. Out in the west, he heard a sound like the whisper of the exhaust from a throttle working lightly. Came a momentary lull in the north wind whipping through the telegraph wires and with it the hum of a train rolling rapidly down the slight grade. An instant later, a locomotive whistle sounded a crossing warning. Third No. 156 was coming close behind and running blind. The white light Eddie had seen

was the light from a lantern hung where a headlight should have been.

Eddie took off. As he ran, he jerked the cap off a fusee. It sputted, spewed and burst into a brilliant red flare. He swung it across the track. The engineer was not looking.

The train was almost upon him. He swooped down with a torpedo in his right hand and slapped it on the rail. When he straightened, the engine was three hundred feet away. He swung the blazing flare at arm's length. The engineer had now seen him and was answering his signal. The runner knew a washout when he saw one. He used emergency air and the emergency brakes soon brought the train's speed down. The engine rambled on and poked its nose through the smoke screen. The cab rolled by the middle of it. Through the thinning curtain, the engineer saw two red eyes big as whiskey barrels staring him in the face. He yelled:

"Jump, boys! We're into somebody."

Before any one of the four men in the cab could get out of it, the engine jolted to a stop twenty feet from the tail hose of the waycar.

Eddie came on at a leisurely pace. Engineer, fireman and head brakeman, led by a furious trainmaster had come out of the cab. A frightened and subdued conductor and brakeman with the odor of hotbox smoke on their clothing had raced back when they heard the invisible stock train answering a stop signal and come roaring down upon them. All were gathered behind the freight caboose where seconds before angel wings had been flapping. The trainmaster was talking to the conductor, talking straight and hard. Eddie arrived in time to hear him say:

"I've warned you two against this short flagging. You think because your track is straight, you don't need a flag out against a following train. You're crazy. When you leave a train without proper flag protection, you'll sooner or later have a rear-end collision.

"Less than a year ago, I told both of you that if I ever knew of your failing to protect according to Rule 99, I would fire you. It looks like this is it. Blanchard, Callahan, you two men are through here.

EDDIE HAD stopped in the shadows. The official had not yet come alive to the fact that the man who had flagged them was not a member of the crew. When he finished talking, he must have remembered that Callahan had come up the train, not from behind it. He mentally connected this fact into the train of circumstances. He eyed the flagman balefully.

"Mr. Callahan!" he demanded sharply.

"Yes sir," the flagman was meek and humble.

"What were you doing out on the train?"

"Coolin' a hotbox, sir."

"Coolin' a hotbox!" the TM screeched. "Do you mean to tell me you went off and left the rear end of this train with no protection whatever and a train right on your tail."

Then it came to him that there had been a flag out against them.

"By the way, who did flag us, Blanchard?" he inquired.

The conductor did not answer, neither did his brakeman. The old rancher answered for them.

"It was that young man, behind you," he said indicating Eddie. "If he had not gone back and stopped you, you would have had the damndest wreck you've ever had on this railroad.

The trainmaster looked around. Eddie was carrying the skeleton frame lantern in the crook of his left elbow.

"Who are you, young man?" he wanted to know.

"Just a cowpuncher helping herd some TC Ranch cattle into Omaha." Eddie was feeling pretty good right then.

"You sure didn't handle that job flagging like a cowpuncher," said the TM. "The way you swung that fusee and slipped that torpedo right under our pilot wheels, when your signal was not answered, looked to me like the work of an experienced railroader."

"It was, sir," Eddie conceded. "I

spent three years flagging for a hard conductor on a crooked line through the Ozark Hills."

"And you quit railroading to go punching cattle?"

"Not exactly, sir. I quit at the request of my division superintendent."

The trainmaster did not ask then what he had been fired for. He said:

"I'll be needing a couple of men to replace these two short-flag artists if they get what I think they will. How would you like to go to work for the Nebraska Western?"

"I'd like it, if you'll give me time to take this stock into Omaha."

"Fair enough. When you return from Omaha, come into my office in Custer and I'll put you to work."

Time was passing. Freight conductors had to get their cattle off the main line for some varnish due soon. The engineer up ahead was calling for a signal. Cattlemen were coming in from the right-of-way fence to catch their caboose before it ran off and left them. The fireman on the third one had been working on his headlight. He got it going and its brilliant beams burst upon the group of men standing in the track. For the first time the trainmaster had a good look at the face of the man he had just offered a job braking.

"Your face looks familiar, young man," he said frowning thoughtfully.

"It should," said Eddie. "I was in your office in January asking for a job braking."

"And why didn't I hire you?"

"Because my service letter reads: 'Discharged for improper flagging, resulting in a rear-end collision.' "

"Your service letter reads— Well, I'll be double damned. Here I've just fired two men for improper flagging and turned around and hired another one that actually let two of 'em get together."

The official laughed. Everybody laughed. Tension broken, hardfaced old John Callahan extended a bony-fingered hand to Eddie.

"Brother McIntosh," he said earnestly, "I want to apologize for my rudeness to you a while ago when you asked for the oil. I sure hope I'll be as lucky as you in finding another job on a good railroad."

Eddie said he hoped so too.

The trainmaster said: "You probably will, Callahan. Matter of fact, since I've had time to think it over, I've decided maybe this affair here will teach you two men a lesson that will break you forever from this habit of leaving trains out on the main line with no flag behind them."

"I'll say it will," breathed the flagman fervently.

The stockmen were now in the caboose. The wheels were slowly moving. Eddie went up the steps ahead of the crew. He started to sit down on the cushioned bunker, but Callahan said:

"Come on up to the doghouse, and ride the rest of the way in comfort. We'll brew a pot of coffee when we head in for No. 5."

Eddie accepted the invitation. He had found his place once more in the house with the rolling wheels.

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Locomotives of the

Milwaukee Road (PART II)

Diesel Locomotives

Class	Numbers	Drivers	Horsepower	Engine Weight	Tractive Effort	Builder and Date
			B-B (Switcher) Type			
6A-S	1600, 1601	40	600	199,300	49,825	Alco, 1940
	1602, 1603	40	600	201,000	50,250	Alco, 1939
6E-S	1610–1612	40	600	202,900	50,725	EMD, 1939
	1613–1624	40	600	201,800	50,450	EMD, 1940
	1625–1633	40	600	197,260	49,315	EMD, 1940
	1634	40	600	197,860	49,465	EMD, 1941
6B-S	1635	40	660	203,880	50,970	Baldwin, 1940
12E-S	1646	40	1200			EMD, 1950
10E-S	1647–1649	40	1000		62,464	EMD, 1947
	1650, 1651	40	1000	252,190	63,048	EMD, 1939
	1652–1654	40	1000	247,520	61,880	EMD, 1940
10A-S	1657–1666, 1669	40	1000	233,000	58,250	Alco, 1943, '45
	1670, 1671	40	1000	235,000	58,750	Alco, 1940
	1672–1674	40	1000	233,000	58,250	Alco, 1940
	1678, 1679	40	1000	233,000	58,000	Alco, 1941
	1850–1859 1861, 1862	40	1000	233,000	58,250	Alco, 1949, '50
10B-S	1680, 1681	40	1000	243,980	60,995	Baldwin, 1940
	1682	40	1000	237,580	59,395	Baldwin, 1942
	1683–1687	40	1000	237,000	59,625	Baldwin, 1943, '44
	1688–1697, 1901–1904	40	1000	242,000	60,500	Baldwin, 1945, '49
3.8G-S	1699–1701	33	380	89,762	22,447	GE, 1940, '41
3.8W-S	1702–1707	33	380	88,892	22,223	Whitcomb, 1941
3.8D-S	1708, 1709	33	380	87,800	21,950	Davenport, 1942
10F-S	1802–1825	40	1000	244,520	61,130	FM, 1944, '45, '46, '49, '50
12F-S	1826, 1827	40	1200	244,520	61,130	FM, 1950
			B-B (Road Switcher) Type			
10A-RS	961–963 1676, 1677	40	1000	252,100	61,250	Alco, 1943, '50
15A-RS4	993–996	40	1500	232,375	58,091	Alco, 1949
			A1A-A1A (Road Switcher) Type			
15A-RS	975–992	40	1500	250,000	41,670	Alco, 1946, '47
			(B-B) + (B-B) (Transfer) Type			
20ET	2000, 2001	40	2000	494,460	81,600	EMD, 1949, '50
			(B-B) + (B-B) (Freight) Type			
27E-F	35–47	40	2700	461,645	115,400	EMD, 1941, '42, '43, '45

W. Krambeck

Robert C. Schell, Jr., and Jim Scribbins

Above: high, narrow, and not so handsome. 6A-s Class built by Alco in 1940, and one of the same builder's 10 AR-S road switchers, assigned to the LaCrosse & River Division, 3rd District. ***Opposite*** page: 27E-F No. 45 gets a lefthanded start out of KCS-Milwaukee's East Yard, Kansas City, Mo., with symbol freight 86

Class	Numbers	Drivers	Horsepower	Engine Weight	Tractive Effort	Builder Date
			B-B (Freight) Type			
15E-F-4	68–73 (A)	40	1500	234,539	58,635	EMD, 1950
	68–73 (B)	40	1500	229,600	57,400	EMD, 1950
	74–79 (A & C)	40	1500	234,539	58,635	EMD, 1949
	74–79 (B)	40	1500	229,600	57,400	EMD, 1949
	80–83 (A & D)	40	1500	235,600	58,900	EMD, 1949
	80–83 (B & C)	40	1500	227,780	56,945	EMD, 1949
	84, 85 (A & D)	40	1500	234,539	58,635	EMD, 1949
	84, 85 (B & C)	40	1500	229,600	57,400	EMD, 1949
	86 (A)	40	1500	234,539	58,635	EMD, 1949
	87–89 (A & C)	40	1500	234,539	58,635	EMD, 1949
	87–89 (B)	40	1500	229,600	57,400	EMD, 1950
	90–95 (A & C)	40	1500	260,570	65,140	EMD, 1950
	90–95 (B)	40	1500	249,675	62,420	EMD, 1950

Jim Scribbins, 1609-A West Center St., Milwaukee 6, Wisc.

Westbound ***Olympian Hiawatha,*** 11 cars, approaches Soo Line crossing at Duplainville, Wisc. behind opposed-cylinder-powered Fairbanks-Morse units 9-A, 9-B

Class	Numbers	Drivers	Horsepower	Engine Weight	Tractive Effort	Builder Date
			(A1A) + (A1A) (Passenger) Type			
20F-P	5–12 (A & B)	40	2000	329,300	56,000	FM, 1946, '47, '48
	21, 22 (A & B)	40	2000	327,250	55,650	FM, 1947
20A-P	14 (A & B)	40	2000	334,625	57,400	Alco, 1941
20E-P	15 (A & B)	36	2000	314,565	52,850	EMD, 1941
	16–20	36	2000	323,950	54,700	EMD, 1946

Below: 20 E-P No. 16-A gets out of Omaha with the ***Midwest Hiawatha***

Milwaukee Road

First Milwaukee Road passenger Diesels were assigned to ***Morning*** and ***Afternoon Hiawathas.*** They were 1941 Alco jobs like 20 A-P No. 14

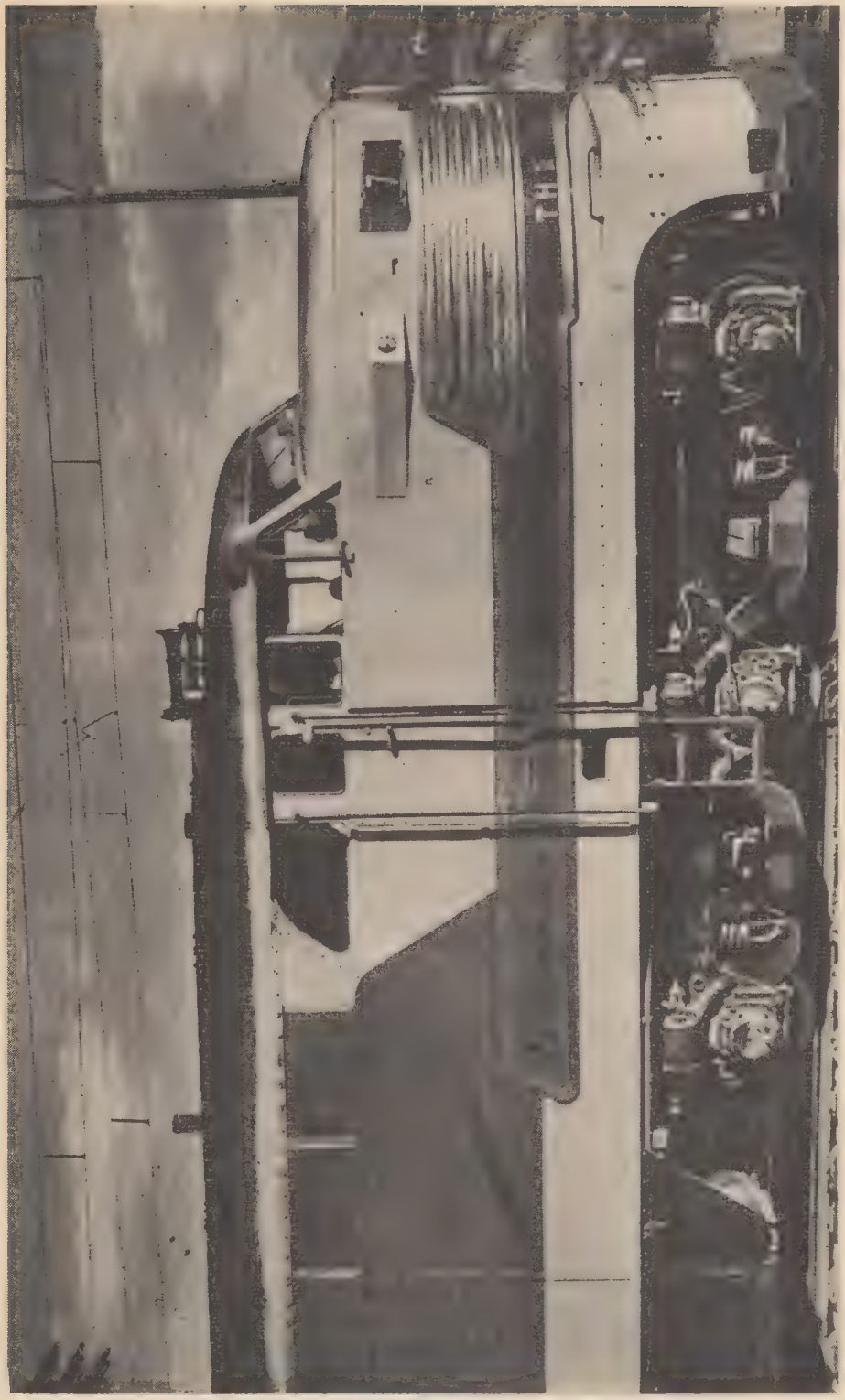
Class	Numbers	Drivers	Horsepower	Engine Weight	Tractive Effort	Builder Date
			A1A = A1A (Motor Car) Type			
	5900, 5901	36	1000	221,710	23,455	Milw., 1948

Electric Locomotives

B-B (Switcher) Type

ES-2	E80–E83	40	475	164,000	41,000	GE, 1917 '19

Joe Burkhart, 6804 Minne Lusa Blvd., Omaha, Nebr.



Invader. *Olympian Hiawatha* Diesel, under hot wires at Butte, Montana. She's No. 7, of the 38-A Class

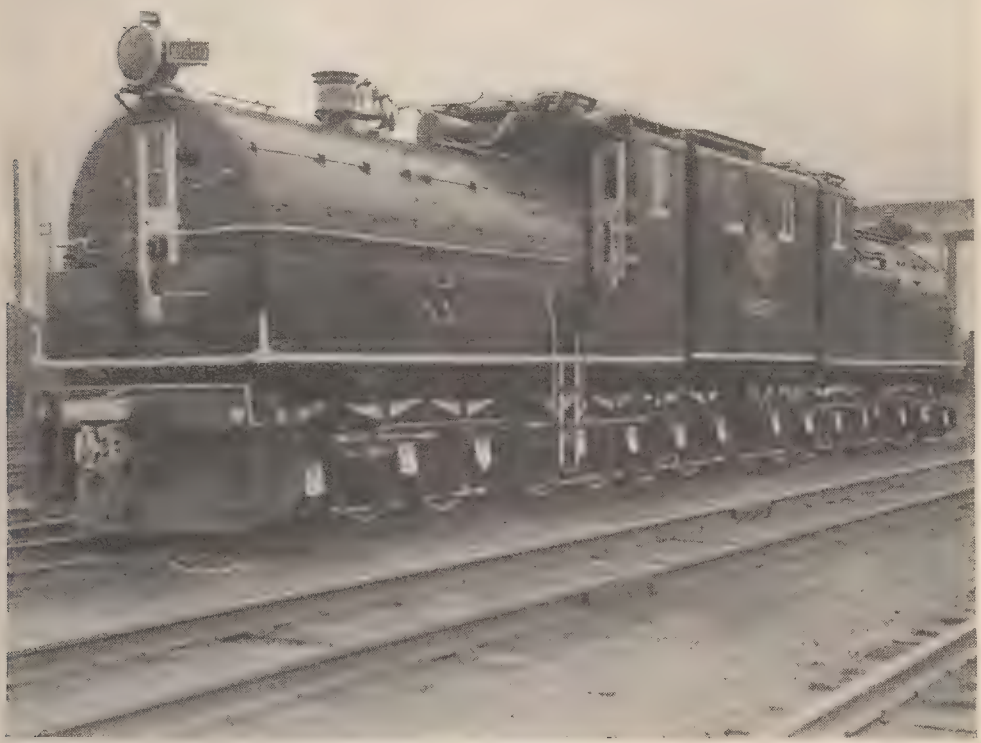
Fred H. Ragsdale, Box 475, Big Bear City, Calif.

Before Hiawatha went classical, the *Olympian* took Jove's bolts through the pantographs of juice jacks like the EP-3s. Shown here are E-16 and E-10, about to pull out of Butte for Seattle

Milwaukee uses box-cab EF-3s, in multiples of three and four, to hoist freight over the Cascades. Photo was made prior to renumbering

Little Joe **in action. One of twelve 5110 hp. GE units bought by the road for service between Harlowton, Mont., and Avery, Idaho; she was originally built to operate on 5-foot-gage Soviet Railway System**

Class	Numbers	Drivers	Horsepower	Engine Weight	Tractive Effort	Builder Date
			Freight Type			
EF-4	E70–E72 E74–E79					GE, 1916, '17 GE, 1950
			(2B-B) + (B-B2) (Freight) Type			
EF-1	E50–E52, E54–E56 (A & B), E57 (B), E59, E64, E68, E69 (A & B)	52	3000	576,000	112,750	GE, 1915, '16
			(2B-B) + (B-B2) + (B-B2) (Freight) Type			
EF-2	E37–E42, E45, E47, E49 (A, B & C)	52	4500	864,000	169,125	GE, 1916, '17
			(2B-B) + (B-B) + (B-B2) (Freight) Type			
EF-3	E25–E36 (A, B & C)	52	4500	816,000	172,750	GE, 1915, '16, '17
			1B + D + D + B1 (Passenger) Type			
EP-2	E1-E5	44	3200	521,200	114,450	GE, 1919, '20
			2C-1-1-C2 (Passenger) Type			
EP-3 EP-4	E10–E12, E14–E18 E20, E21	69	3400	620,000	105,000	West., 1919, '20 GE, 1950



Harvey Uecker

Now renumbered E1-E5, famed Milwaukee electric prototype, ***above***, is used in the Cascade Mountains, one of longest U. S. electrified runs. By winding armatures around twelve of its fourteen axles, designers got high tractive effort without using gears

FIDDLETOWN & COPPEROPOLIS RY.

No. 31 No "Featherbedding" on F&C, Report *by Carl Fallberg*

Sleeping Car Patrons, after Stop at Big Indian Flats

Mike Runey

Pre-Diesel days. *Pacific* 2092 eases down the main to doublehead the *Black Diamond* out of Ithaca, N.Y., home of Cornell U., an important stop on the Lehigh Valley

On the Spot

AN EXPLOSION on the South Manchurian Railroad on the night of September 18, 1931 marked the beginning of the Pacific war that America was dragged into a decade later by the Pearl Harbor attack. Japan argued that Chinese soldiers touched off the explosion, which China denied. The Sino-Japanese War which ensued led eventually to World War II.

These facts come from Floyd J. Mattice, an American railroader and member of the International Tribune for the Far East, at Tokyo, which tried Japanese war criminals. The tribunal assigned him to the legal staff defending the accused.

"General Itagaki, one of the men I represented at the trial, was stationed in Manchuria at the time of the explosion," Mattice writes. "Under treaties and contracts with China, Japan had built the rail line for about 620 miles and developed the country along it, maintaining 10,000 troops in Manchuria for that purpose. Itagaki, then a colonel, was third in command. His commander-in-chief, General Honjo, killed himself immediately after the surrender. The second in command, General Ishihara, who was not indicted but was ill at the time of the trials, was an important witness for defendant Itagaki.

Normally a freight hauler CPR Engine 5924, a 2-10-4, pulls a passenger train through the rugged terrain of the Canadian Rockies

"So the Tribunal ordered that a commission go to Ishihara's home at Sakata, Japan, some 400 miles north of Tokyo, and take his testimony. General MacArthur's headquarters provided an 8-car special train to carry the party to Sakata and back. On board, aside from the train and engine crew, were 54 persons, including court reporters, interpreters, lawyers, army officers, news correspondents and cameramen. They all ate and slept in the cars.

"The train had a club car, a diner, three sleepers, two radio cars, and a day coach. Japanese used the day coach, taking along their own food. At Sakata, for three days and nights the train stood at the station, while the attached locomotive steam-heated the cars. Thus GHQ took the court to the ailing witness."

Mattice tells us Japan is the only country whose railroads derive more revenue from passengers than from freight. Japan has some 15,000 miles of raillines, mostly 3½-foot gage, some narrower, but Tokyo's electric streetcar lines are the width of our standard gage.

"Japan's railroads have one advantage over ours," he writes. "All station platforms, even at tiny way stations, are car-floor level. The suburban trains in and around Tokyo beat any I know of (except New York subway cars) for speed in loading and unloading. There are four doors on each side of each coach, but no end doors or vestibules.

"Most of Japan's railroads are government-owned and have an average of 34 employes to each mile of track, whereas in the U. S. A. the average I believe is six employes to the mile. In Japan there are gates and a watchman at every country highway grade crossing. When a passenger train passes a station, the uniformed employes there stand at attention facing the direction the train is moving until it has gone. Formerly they also saluted, but some top American Army officer, noticing this, stopped the practice because it smacked too much of the military.

"And at every switch a uniformed employe stands while a train is passing. I observed a novel arrangement on a special passenger train. Set in between the electric locomotive and the baggage car was a small car containing a boiler which was used to steam-heat the cars."

Callboy and then night yard clerk on the Lake Erie & Western (now Nickel Plate) were Floyd Mattice's first rail jobs. "In those days telephones were few," he recalls. "Crews were called by a boy on a bicycle. I worked at Lima, Ohio. One night the first station to the northeast asked for help to put out a big fire. A special train was ordered to the town with Lima's firefighting equipment. The boss gave me this message to deliver verbally to each crew member I routed from a warm bed about 3 o'clock in the cold morning:

"Jump in your clothes as quick as you can! There's a fire at Beaver Dam!"

"I learned telegraphy while I was playing with a line strung between the homes of several boys but with no intention of ever working at it. The LE&W chief dispatcher, who lived next door to me, often watched our fun. One evening, to my surprise, he beckoned me over to the fence and said he wanted me to go to Bluffton on No. 2 to relieve a sick night operator.

" 'Why, I couldn't do that,' I protested. 'I've never worked a telegraph job in my life.'

"But he persuaded me, and I went. The Bluffton station agent met the train and showed me what to do. I got along fine until about 1 a.m., when the dispatcher called me, saying, '31 copy 3.' It was a meet order for an eastbound and a westbound passenger Train No. 3, on which my father was conductor and my brother was brakeman.

"That gave me the usual buck fever. I could read the DS all right but couldn't write it down. He was very patient, however, and I finally got it down, repeated the order, and received his OK. I was proud of that order. When my father came in to sign for it, I asked him to keep his copy for me. I still have it. Later, the dispatcher called me for another meet order and I wrote it down without breaking him once.

Great Northern

In the picturesque Columbia River area near Rock Island, Wash. a long freight snakes westbound over a reinforced girder truss bridge. GN Engine 432, an EMD F-7, is a four-unit 6000-hp. Diesel-electric

"During my high school days I worked as relief operator and station agent. On one occasion I relieved the night op at Red Key, Ind., working from 7 p.m. to 7 a.m. The day man didn't show up, so I handled the next 12-hour trick also, and even all of the second night, and the next day, and far into the third night.

"By that time I was more than a little drowsy. Noting there were no trains on the schedule, I decided to grab a few hours' sleep, expecting to wake up before any train ordered out from either end of the division could reach Red Key. The Panhandle crossed the LE&W at that point. I set our old hand-operated target across our track, put out my red order board, lay down with my ears close to the sounder on the train wire, and was soon sleeping.

"Finally, away off in the distance, I heard the dispatcher calling RK, and I answered him. He asked me what time Extra East, engine 57, went by. Looking out the window, I saw that someone had swung the target gate around off the Lake Erie track, and I knew something had gone through. 'It must have just gone by,' I said to myself. Guessing at the time, I OSed the extra by about five minutes previous to his call.

"The dispatcher then accused me of having been asleep, which of course I denied. He then inquired how much of a train it was. He had me there; I hadn't seen it. When I said I hadn't noticed, he called me a liar, saying it was a light extra. It had coasted down in front of the station, using no steam, without waking me up. Afterward, the conductor told me that he had seen me asleep, had checked to see that nothing was written on order blank forms 31 or 19, and had decided that I put the board out and set the target to get some shut-eye. So they swung the target and went on through. I never heard from it. Guess that episode was not reported to the super."

Mattice tells us the biggest thrill of his early life came when the division superintendent asked him to go with the big hook to the scene of a train wreck. "My excitement knew no bounds as Jim Porter, the company's lineman, climbed a pole and cut in a box relay on the train wire. Working 'station WK' was a joy I will never forget."

"On one relief job," he continues, "having a typewriter at hand, I copied train orders on it. That was an innovation in the days of hand-written orders. I received many nice comments from trainmen, who said the typed forms were easier to read. One day the super wrote me a letter stating it had come to his attention that I was copying train orders on the typewriter and must stop doing so. I obeyed. But some time later, he informed me that he had reconsidered. So many trainmen liked typed orders that he was putting out a bulletin authorizing all operators to use a machine in copying the orders if they wished to."

On March 17, 1897, the night that Fitzsimmons won the heavyweight boxing title by defeating Corbett in 14 rounds at

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FOR 58 YEARS A FRIEND TO ORGANIZED LABOR

Carson City, Nev., Western Union kept the public informed with a blow-by-blow account sent out over a special wire. Among the subscribers to that service was the Oak Saloon and Cafe at Lima, Ohio.

Mattice recalls: "An operator stationed on an inside balcony was kept busy copying the bulletins on a typewriter. Each bulletin ended with a statement as to who had won that round. Knowing the Morse code, I knew who had won the round before the op pulled the sheet out of his mill. I won all the bets. Then, laying the money on the bar, I told them how it was a lead pipe cinch for me. For just about the only time in my life I had been betting on a sure thing."

* * *

WANTED: names of the crew involved and details of a Grand Trunk wreck that occurred on a Saturday night many years ago at Cochrane, Ont., Canada. The information is sought by an old rail, J. E. Bliss, 417 East Jefferson Street, Syracuse, N. Y., who has a photo of an engine laying on her side in that wreck. He says the engine, engaged in construction work, was backing up, taking the crew to a dance. The body of Conductor Bob Flagg of train No. 2 was lifted out of a hole under the cab. Bliss calls himself an old reader.

H. L. Kelso

Southern Pacific's play on words is: "Go Diesel." Engine 6123 is a 6000-hp. Diesel-electric freight unit

ENGINE-PICTURE vacation recently took Gene Miller, 622 Taylor Avenue, Evansville, Ind., and his camera to Chicago; North Platte, Neb.; Cheyenne, Wyo.; Cincinnati, Ohio; Russell, Ky., and Huntington, W. Va. Judging from his enthusiastic report, you'd almost think the Union Pacifice yards at Cheyenne were designed especially for *Railroad Camera Club* members. He sums up:

"As a result of my vacation I have lots of spare negatives, sixe 616: UP, C&NW, C&O, L&N, N&W, Southern, B&O, Pennsy, etc. Collectors who need a lift on negatives should write me."

* * *

ADD TO the list of railroads that run under graveyards the New York Connecting Railroad, which operates under New York's Lutheran Cemetery, reports A. Lievre, 433 East 68th Street, New York, 21, N. Y. And at Wheeling, W. Va., the B&O extends beneath Peninsular Cemetery, while the C&P (Pennsy) is tunneled under Mount Wood Cemetery, according to Harry Nolan, Cadiz, Ohio.

* * *

COINCIDENCE. "The other day," writes G. M. Reid, 633 Day Avenue, Jacksonville 5, Fla., "J. W. Connell and I, third trick Atlantic Coast Line car inspectors, inspected a delivery of 30 cars from the Florida East Coast. The 29th and 30th were empty boxcars numbered respectively Northern Pacific 26561 and Southern Pacific 26561."

* * *

HAWAII'S OAHU Railroad, which quit operating trains more than two years ago and began running a fleet of buses over the island, is now taking its locomotives out of white lead and preparing to resume rail

We thought you might like to see a few *Railroad Magazine* contributors all in one gang, so at a get-together in Los Angeles H. L. Kelso handed his camera to a waitress, with this clockwise result: Kelso, left, Charles Tyler, H. Reynerson, Harry McClintock, William F. Knapke and Harry Bedwell

operation to serve the various military and naval installations, reports H. L. Willey, 7185064, NAS Navy No. 14, Comm. Div., c/o San Francisco Post Office, now stationed in Hawaii.

It took four days and about $600 to recondition each of the Oahu's old flat-bed cars. When they rolled out of the shop, each was mechanically perfect, with a new wooden bed and a glistening coat of paint. In a little over six weeks 164 of the cars were reconditioned. Buses have proved to be a poor substitute for rail transportation.

* * *

DAVID L. JOSLYN, retired Southern Pacific cameraman, "recalls a bell used in the SP's River Depot at Los Angeles, a building that has long since vanished," Freeman H. Hubbard stated in *Romance of Station Bells* (December). When he got off there in 1905 on his honeymoon, he heard the bell being rung for the train to depart for Los Angeles' main station."

That must have been a ghost bell, according to William F. Knapke, retired SP conductor, Box 454, Bellflower, Calif., who comments: "I went to work at the SP's River Station in 1903 and ran into and out of there for 17 years at various times of day and night, but never saw or heard of a bell there other than those on locomotives working in and through the yard.

"River Station at that time was the yard office, trainmaster's office, telegraph office, and waiting room for passengers for westbound trains (mostly locals). The regular passenger station was the old Arcade station at 5th and Alameda streets, about 2 or 3 blocks from River Station. The building has not been torn down. Haywire Mac (H. K. MClintock) and I drove by it the other day. However, it is no longer used by the railroad."

Bill tells us about a luncheon given recently at Los Angeles by Harry Bedwell, rail-fiction writer, author of the book, *The Boomer*. Guests included Bill Knapke, H. L. Kelso, Charles Tyler and Haywire Mac, all well-known *Railroad Magazine* authors, and H. Reynerson. Your editor does not recall any other luncheon at which so many of our writers sat down at the same table, and regrets he was not there. Says Bill: "We had a very pleasant gathering and, of course, the usual railroad yarns."

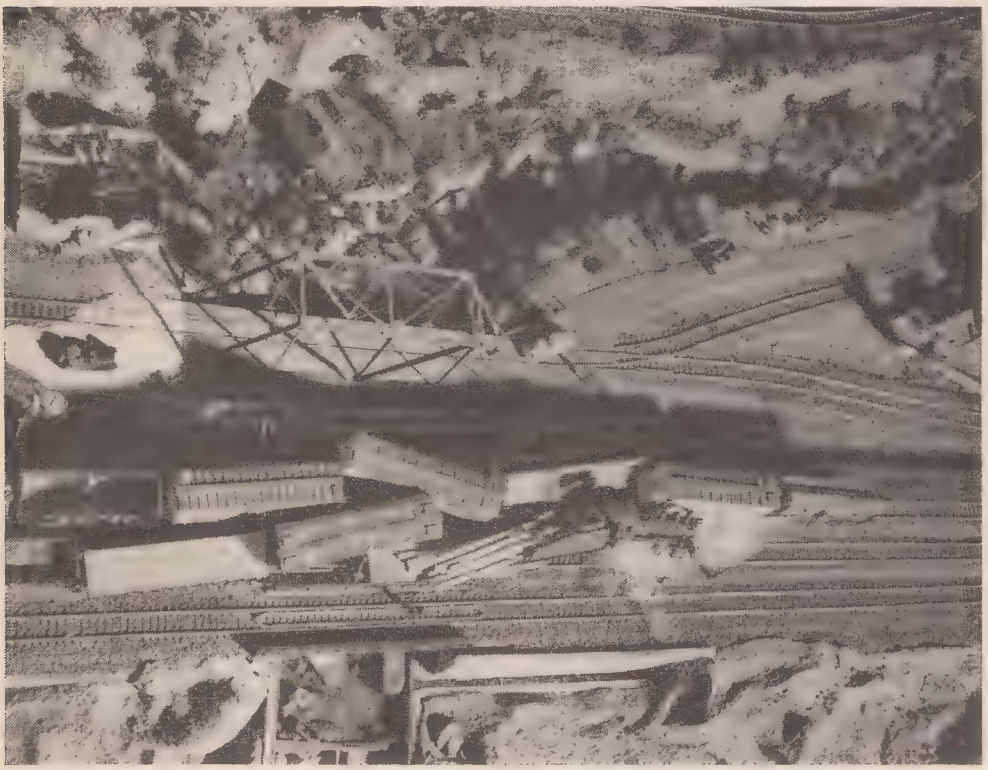
* * *

NEVER AGAIN vows Bill Clason, 10918 St. Mark Avenue, Cleveland 11, Ohio. "I was a bus driver or bus dispatcher for 15 years, but will never go back to it. For the past six years I've been railroading on the B&O, first in train service, then as a Cleveland yard foreman, and am now flagging a Cleveland-Wheeling local passenger run."

This answers *On the Spot* (November) which said William T. Wengler had quit bus-driving to become a rail and asked about other readers who had done likewise.

In 1936 Bill Clason gave up model railroading, in which he'd spent $500 in three years, "because it's too costly," and began collecting a file of *Railroad Magazine* (including its predecessors, *Railroad Man's Magazine and Railroad Stories).* Eight years later his file was complete from October 1906, when our first issue came out. He now says he has kept it up to date ever since, with every issue in fine condition, unbound, unclipped, and no front or back covers missing.

We know of only four such complete files: Bill's, our office file, and the files owned by Harold Phillips, Box 152, Is-



International News Photo

Wreck of the express freight. Actually the damage was practically nil, the wreck having been set up in the clubrooms of the Metropolitan Society of Model Engineers in Washington's Union Station

lington, Mass. and Harvey E. Grofe, an ex-rail, president of the National Bank of Boyertown, Pa. Our file and Phillips' are bound. Both were acquired by saving each issue as it came out. The other two are unbound and were amassed only after much time, effort and expense.

About ten years ago we printed the names and addresses of more than 60 readers whose *Railroad* files were complete since December '29, the date we resumed publication after a lapse of about ten years. Bill Clason gives his wife credit for having started him on the road to collecting *Railroad*.

"She pointed out that many fellows appearing in the *Switch List* wanted to sell back copies of *Railroad Magazine*. So I got busy. First I assembled all issues since Dec. '29. Then I hunted for the older ones, 1906 to early in 1919. A certain banker had 42 old copies from 1914 to '18. I coaxed four months before he'd sell them. After that I made weekend trips to Pittsburgh, Columbus, Toledo and Chicago to haunt the used magazine marts. But my greatest ally was *Switch List*. I mailed out more than $100 in small sums to strangers all over the U. S. and Canada —and not once was I beaten out of a penny!"

Bill is trying to live down the fact he used to be a bus driver. He was really a good railroader gone wrong. His first job was car record clerk on the Pittsburgh & Lake Erie. Although he was only 16, he was accepted for active duty overseas in the 8th U. S. Cavalry in World War I. Returning home he hired out as a baggage man at the New York Central depot in Cleveland; then worked on the road as a messenger until he was laid off. From that he sank down, in 1921, to the level of an interstate bus driver and bus dispatcher, but finally redeemed himself by going back to railroading.

* * *

BAD NEWS for train riders: the Erie has been authorized by the New Jersey State Board of Public Utility Commissioners to pull off 28 passenger trains from main and branch lines and to reschedule eight others, so the road would lose less money on its passenger service. Reduction was granted on condition some substitute trains be scheduled.

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WHAT WILL HAPPEN to the last two-foot gage railroad in America, the Edaville, since Ellis D. Atwood's post-Thanksgiving death, wonders L. W. Moody, Belfast & Moosehead agent. Moody was associated with Atwood's famous slim-gage cranberry line from 1945 to '47.

Last November 26 a boiler in Atwood's business office exploded, injuring him, and he died four days later without regaining consciousness, a hurricane victim.

Moody writes, "His road, built at a cost of nearly $500,000 of his personal money, gave not only pleasure to the chance tourist but gave railfans first-hand contact with a unique railroad."

Atwood and his wife never intended to create a national rail mecca when he bought the Bridgton & Harrison in Maine before the war and moved the equipment over highways to his South Carver, Mass. estate, says Moody. "A hobby railroad in his own back yard was the idea, but his back yard was 1800 acres wide. The Edaville (named from his initials, E.D. A.) burst into popularity long before the 5½-mile loop was completed. 3000 visitors on a Sunday wasn't unusual."

Last year 250,000 people rode the midget trains and enjoyed the superb scenery and hospitality of those three square miles of the world's largest privately-owned cranberry farm. Perhaps Atwood's nephew, John Eldredge, may keep the tiny railroad going, says Moody.

"Atwood built a station complete with a lunch counter and bazaar," writes Moody. "A museum was established in an adjoining building. Trains ran on frequent schedule. Christmas and New Year's drew throngs. Cranberry harvesting time in September attracted still more. The crowd loved it. So did Mr. and Mrs. Atwood. While Mrs. Atwood did work with her noted husband managing the Edaville, she isn't as interested in railroading as he was."

JACK HAMILTON (author of a manuscript submitted to Railroad Magazine), will you please get in touch with us?

* * *

YOU CAN MAKE IT. Edward H. De Groot Jr., Colorado Bldg., Washington, D. C., who held many official jobs on the Burlington and the Chicago & Eastern Illinois, recalls a talk with a reporter some years ago:

"He told me of being on a train through Illinois, from which Teddy Roosevelt was campaigning for the Presidency. It had been understood there would be a five-minute stop at Bloomington; so the newspaperman, needing some stationery, leisurely made his purchase. But when he came out of the station, the train was pulling away. Though he ran after it with all his might, the train seemed to widen the distance between them.

"Teddy was on the rear platform. He leaned over the railing and shouted at the top of his capable lungs: 'Come on, you can make it! Come on, you can make it!' Mr. Roosevelt raised the platform door, stepped down, and stuck out his hand.

"Later, the reporter told me: 'I was just about to give up, but I made a spurt that to this day I do not understand. Grasping Teddy's outstretched hand, I was dragged up the steps, where I lay on the platform, utterly exhausted. I had *to* make it. Teddy had expected me to, and with his encouragement I did.' The lesson is obvious."

* * *

BILL KNAPKE'S true tale *While the Angels Watched* (November) evokes this comment from "Silent Slim" Roach, retired boomer trainman and switchman, Portland, Ore.:

"Bill missed his calling. He should have been a minister instead of a conductor. That tale gave me the creeps. It's possible that Bill once met Pat O'Brian, an oldtime drifter who carried an up-to-date ORC card. Pat was a great talker. He could set a switch shanty on its ears with dramatic yarns that probably never happened except in his own mind. You should have seen him wave his arms at a tragic point of a story. Bill's tale reads

Philip R. Hastings

Elsie the Locomotive, Canadian Pacific's 2596 hauls milk tank cars. In front of the B&M engine house at Woodsville, N.H. the engine pauses for a breather. The 4-6-2 goes north and south, leaving Woodsville before sunrise for Newport, Vt. and returning afternoons

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like Pat's way of telling things. I was wondering if he dipped his memory paint brush into Pat's dope bucket."

* * *

ONLY ONE steam engine was put in service on all of America's Class I roads during the first ten months of 1950. During the same period 1915 new Diesels and four new electric locomotives took to the rails. In fact, that period showed more new motive power in general than any corresponding ten months of the past 27 years. The dwindling of steam power is now an old story. As we go to press, the Class I roads have on order 1496 Diesel, 19 steam and 8 electric locomotives.

* * *

COMMEMORATING the 25th anniversary of the famous Montreal-to-Vancouver run of Canadian National Diesel-electric car No. 15820 in 67 hours, the Canadian Railroad Historical Association held a fantrip from Montreal to Huberdeau, Que., last October 1st, using Diesel-electric car 15837 and coach 3409, with 80 passengers. Many stops were made for photographers.

Another memorable run was staged on the Milwaukee Road from Milwaukee to Wauwatosa, five miles, last November 20th. The occasion was the road's 100th birthday. A brightly polished steam engine and two small coaches, 100 years old, with letter boards reading "Milwaukee & Mississippi Rail Road," original name of the CMStP&P, reenacted the road's first run. Pageantry, choral singing, band music and feasting enlivened the occasion.

* * *

EMBARRASSING MOMENT. It happened in the presence of Carl R. Gray, who was general manager of the Chicago & Eastern Illinois and later became president successively of the Great Northern, the Western Maryland, and the Union Pacific.

On the Spot

"He and I were standing and talking near the roundhouse at St. Elmo, Ill., recalls Edward H. DeGroot Jr. "I had just been appointed superintendent of the C&EI, with headquarters at St. Elmo. A hostler, filling the sandbox of No. 155, overlooked the fact that the turntable was not lined up for him and backed rapidly toward it. Suddenly, without warning, we heard that engine topple into the pit with an ear-splitting din, and as she came to rest her bell gave one protesting clang. To this day I never hear a single note from an engine bell without recalling that distressing incident."

* * *

WORLD TRANSPORTATION FAIR, to be held in Los Angeles from May 30 to September 9 this year, will feature every form of rail travel, in addition to other forms of transportation. Plenty of railroaders and fans will be heading West to view the great array of exhibits.

* * *

TRUDGING six miles through a blinding blizzard was "in the day's work" for two Chicago & North Western men: Ted J. Barcio, roadmaster, and Holman Braden, assistant engineer, Nebraska Division. After the storm had cut communications they plodded from Norfolk, Neb., to Berry siding to tell waiting freight and passenger train crews it was safe for them to proceed.

And on the Southern Pacific last winter a thrilling chapter of heroism was written by railmen who rescued 395 persons from their blizzard-bound automobiles on a stretch of main highway between Lordsburg and Stein, N. M., where 150 gas buggies had been stalled by a fierce storm.

The railroaders went into action when some National Guardsmen returned to Lordsburg with the doleful news that they had failed to rescue the motorists by highway. SP die-hards volunteered to run a

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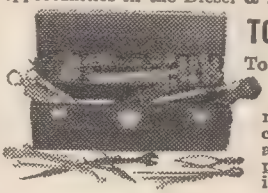

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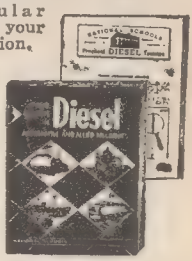

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special train to the snowbound area, where the blocked thoroughfare was nearly a half mile from the track. John Taylor, terminal trainmaster, contacted Supt. G. A. Bays of the Tucson Division and Supt. P. D. Robinson of the Rio Grande Division and obtained clearance to run the special.

At 10:20 that wintry night a queer-looking train of five cabooses and a coach coupled to an engine steamed out of Lordsburg. No other rolling stock was available. Among those on board were Engr. J. E. Lee, Fireman G. Hayes, Condr. John Ford, several brakemen, four nurses and a few Border Patrol men. It was an epic run, steam power going to the rescue after a competitive form of transportation had bogged down!

The volunteers unloaded and waded through deep snow to the stalled motorcars. They helped some 250 nearly-frozen travelers on board the train, then served hot coffee and sandwiches which they had brought from Lordsburg. The train chugged back to town filled with thankful men, women and children, and made a second trip to pick up 100 more. After that a regular crew and a train were called for a third trip, which picked up the remaining 45 stranded persons. Citizens of Lordsburg opened their homes to care for the motorists until they could resume their journeys.

Moral: If you take a long trip in your own car in winter, don't drive very far from a railroad track!

* * *

SARAH CHURCHILL, daughter of Britain's wartime Prime Minister, arrived in Chicago from Los Angeles a while ago aboard the Rock Island's *Golden State* with her husband, Anthony Beauchamp. As she walked past the engine which had pulled the train, Engr. Solomon P. Travis, a veteran of some 40 years service, called to her and said:

"I'd recognize that Churchill smile anywhere. You see, I served with your father in the Boer War."

Lawrence Harris

St. Louis Public Service's old 827 makes one of its last runs along shaded Wydown Boulevard

It was true. Travis had been in the British Army when Churchill was a young lieutenant and was one of the soldiers under Winnie's command. Sarah chatted with the hogger; took his address; promised to relay his best to her father.

* * *

BRITISH RAILWAYS also face stiff competition," writes J. Morris of West View, Garden City, Elworth, near Sanbach, Cheshire, England, commenting on *Why Airlines Are Winning the Passenger Battle* (July '50), and adds, "but ours is chiefly from the buses which run excursions at half fares, especially on weekends. What's needed is a big advertising campaign showing the advantages of railways over other forms of travel."

* * *

WE THINK the stalest of all railroad jokes is the one about the president of a standard-gage short line telling the president of the New York Central or some other big system, "My road may not be as long as yours but it's just as wide." If any reader knows a railroad chestnut with longer whiskers . . .

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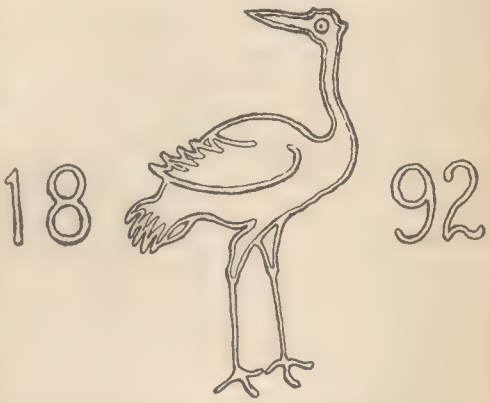
CRANE WITH BROKEN NECK. "You may recall the story of the watermark crane with a broken neck as it appeared in *Railroad Magazine* some time ago and later in Freeman Hubbard's book *Railroad Avenue,"* writes Charles E. Fisher, president of the Railway and Locomotive Historical Society, 20 Wilde Road, Waban 68, Mass.

The story, according to oldtimers who took part in the American Railway Union strike of 1894, commonly called the Pullman strike, is that a broken-necked crane watermark was used on their service letters as a secret blackball system to prevent strikers from getting other rail jobs. So, thousands of railroad men were forced to become boomers with fake names, or take up other kinds of work.

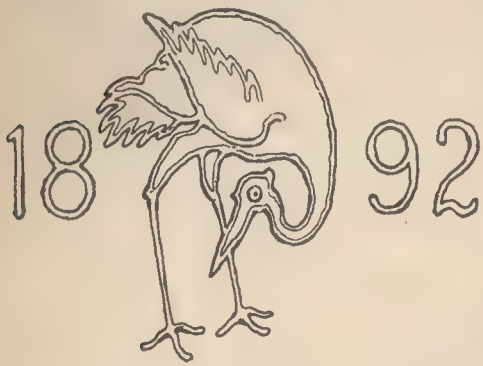
Fisher has checked on the story by writing to Eaton, Crane & Pike, paper manufacturers. They admitted having used variations of the crane watermark for many years but had no record of one with a broken neck. Checking still further, he found two samples of crane watermarks, dated 1892, which are reproduced here. The one showing the bird erect came from a Pullman Palace Car



Company letter. (That letter, incidentally, brings to light the fact that the old New York & New England operated sleeping cars between Boston and Jacksonville, Fla. nearly 60 years ago.) The crane bending down as if to feed came from a Richmond & Danville R.R. letter.

On the Spot

"Here are two different watermarks of this bird, dated the same year, on the same type paper," says Fisher. "I'm wondering if the watermark on the R&D letter is not the one in question, having the meaning implied on a service letter but meaningless on a straight business letter. The Crane company should know



their watermarks. They should know if they made one with a broken neck."

Hubbard, who has studied this subject, is inclined to agree with Fisher's theory that the watermark used in blackballing Pullman strikers was actually the crane with a bent neck. It is easy to see how boomers could have interpreted that bend as a break, thus giving rise to the legend. On the other hand, assuming the legend were true, you could hardly blame a paper company for not wanting to preserve or exhibit evidence of a vicious blackball system.

* * *

OLD-TIMERS employed on the Great Northern's Dakota Division about 50 years ago, especially those who recall the blizzard of March 12-17, 1901, are asked to get in touch with W. C. Kahle, age 76, Kelso, Wash., who writes: "Memory fails me as to the names of men who worked with me on the snowplow train called for 8 a.m. St. Patrick's Day, 1901, at Larimore, N. D., to clear the track. We took on several carloads of water, oats and hay for the livestock on zulu

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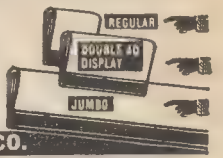

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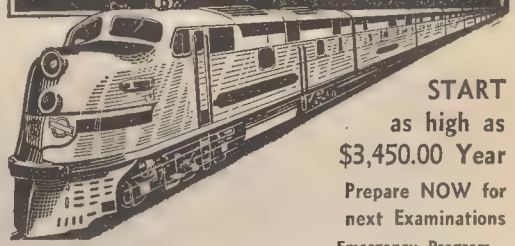

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trains, there being trainloads of emigrants snowbound at nearly every siding between Larimore and Minot, N. D., 178 miles west."

* * *

WALKY-TALKIES. "A short time ago all section crews on the Great Northern's Spokane Division were issued portable telephones, minus the crank on the battery case," reports Walter Thayer (Section 0-3, GN), Box 1588, Chelan, Wash. "The crank was missing to keep the gandy dancers from contacting any operator unless they heard some op on the line and cut in on him to get a train line-up. Recently, however, those phones were exchanged for others having the crank. Now a foreman can ring the nearest dispatcher and get his line-up much more quickly, besides contacting his local agent or op if necessary."

* * *

LAST STOP is the Reader's Choice Coupon (page 144) which guides your editorial crew in selecting material for future issues of *Railroad Magazine*. Some readers use the coupon. Others prefer not to clip the magazine; they send home-made coupons, postcards or letters. Regardless of how votes are given, all count the same. Results of balloting on the January issue show as follows:

1. The Steam Dynasty, *Warner*
2. Born Thirty Years Too Soon, *Schopp*
3. India's Iron Pikes, *Krieg*
4. On the Spot
5. Light of the Lantern
6. Electric Lines, *Harrison*
7. From Scale to Prototype, *Kessel*
8. Open Knuckle, *Pugsley*
9. Teamwork, *Smith*
10. Locomotives of the Carolina, Clinchfield & Ohio

Best photo: top of page 110

W. J. Pontin

Eyes right. CB&Q *Twin Cities Zephyr*, leaving St. Paul, passes a Chicagobound GN troop special arriving behind a 4-8-4

Railroad Camera Club

ITEMS sent to the *Switch List* and *Model Trading Post* are published free, in good faith, but without guarantee. Write plainly and keep 'em short. Print name and complete address.

Because of time needed to edit, print and distribute this magazine, all material should reach the Editor eight weeks before publication date. Redball handling is given to items we get the first week of each month, if accompanied by latest Reader's Choice Coupon (clipped from page 144 or home-made).

Due to scarcity of space, we prefer that no reader be listed here oftener than once in three months.

Use these abbreviations: *photo.*, photograph; *cond.*, condition; *ea.*, each; *elec.*, electric; *env.*, envelope; *eqpmt.*, equipment; *esp.*, especially; *info.*, information; *n.g.*, narrow-gage; *negs.*, negatives; *p.c.*, postcard; *pref.*, preferably; *tr.*, train.

Because complaints have reached us that collectors have been using the term *pix* interchangeably for photos and drawings we are dropping this abbreviation from our listing. Specify *photo* or *drawing*. All other ab-

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breviations remain the same, as shown above.

The term *tts.* refers to public timetables, unless preceded by *emp.*, when it means employe's (operating) timetables.

(R) indicates desire to buy, swap or sell back issues of *Railroad Magazine* or its predecessors, *Railroad Man's Magazine* or *Railroad Stories. (Specify condition of each copy.)*

(*) indicates juicefan appeal.

Switch List

CHARLES E. ABLE, 1178 W. Eldorado St., Decatur, Ill., has 350 Ill. Term. photos, 6c ea., types of cars operated past 20 yrs., incl. old orange, current blue interurbans, streamliners, all classes frt. engs. Send for list.

(R) FRANK A. BROOKS, Jr., Box 248, Lake, Miss., will pay 50c or higher for Jan. '49 *Railroad Magazine;* will also pay postage.

(*) ALFRED BRUNNER, 4533 Woodward Ave., Downers Grove, Ill., wants action photos Southern RR short line; will buy or trade CB&Q, C&NW, elec. lines entering Chicago.

C. L. COLLOM, 491 Walnut St., Meadville, Pa., wants those interested in rail stereos from files of Keystone View to write; also what type. Price prohibitive without volume. Answers self-addressed, stamped envs. only.

Railroad Camera Club

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STANLEY D. CREWS, 202 N. Main St., Crossville, Tenn., wants *Official Guide*, any month '50. Write first, stating price, cond.

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(R) ARNOLD B. JOSEPH, 2512 Tratman Ave., New York 61, N. Y., will sell *Railroad Magazines* '35 to '50, reasonable. Also some *Trains, Model Craftsman,* other mags. Will take ords. on other types of mags. Lists, info. for 3c stamp. Postage paid on all ords.

(*) JOHN LES CANEC, 173 E. Burlington St., Riverside, Ill., wants to corres. with those who have or take movies of streetcars (8 mm). Also wants to contact anyone having photo Virginia Elec. & Power Co. (Virginia Transit) Richmond, Va. Car 1507.

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JOHN J. MULLIN, 2041 Fletcher Ave., Fort Lee, N. J., has available up-to-date, old emp. tts., RR guides; also other RR data. Send for free list of obtainable items.

(R) G. W. PLUMMER, 321 East Fourth St., Ottawa, Kans., has *Railroad Magazine* '42 to '47. Will trade for RR material prior to 1900, also for emp. time cards, tr. ords. all rds. Will also sell.

(R) CHARLES L. REED, 2329 27 Ave. So., Minneapolis 6, Minn., will sell 12 yr. Vol. *Railroad Magazines*, all good cond.

(*) F. E. REIFSCHNEIDER, Box 774, Orlando, Fla., offers *Trolleys of Emp. State*, 60 pages., 10 illus., 75c p.p

(*) R. L. RITTERBAND, 2695 Greenfield Ave., Los Angeles 64, Calif., will sell collec. of 25 to 30 yr. old tts. List for stamp.

(*) R. DONALD ROSS, 2369 S. 57th St., West Allis 14, Wis., has lists trolley, steam photos mostly size 616. List, sample either trolley, steam, 10c. Will trade. Buys, sells, trades excell. negs., mostly around Milwaukee.

JIM SCRIBBINS, 1609A W. Center St., Milwaukee 6, Wis. sells size 616, 116 photos most classes Milw. Rd., also GB&W, C&NW, Soo, about 40 other rds., 16 for $1. List, sample 10c

(*) JOHN SEBASTION, 2108 Howell St., Covington, Ky., sends selections all types elec. photos, negs., color slides bi-weekly on approval for sale or trade to those sending $1 returnable deposit.

ALLEN A. SHARP, 100 Shennecossett Pkwy., Groton, Conn., wants photos, historical data on Bangor & Aroostook RR and acquired rds. Will sell or trade for above, old 1885 to 1901 tts., tkts.; RR, steamship travel folders, maps, etc.; rule books, *Eqpmt. Registers, Official Guides*, city maps, directories. List for stamped env.

DWIGHT A. SMITH, Jr., 89 Woburn St., Reading, Mass., is disposing of large collec. tts., emp. tts., *Official Guides*, etc. List for stamp.

EARL L. STIMPSON, 35 McLellan St., Brunswick, Maine, has size 616 photos MeC, B&M, D&H, CP, CV, C&M, others. List, sample 10c.

W. R. SWANSON, 5729 27th Ave., N. E., Seattle 5, Wash., will sell *Baldwin Locos* '32 to '40; *Model RRs* '34 to '48; *Trains* '40 to '49; old NYC; PRR calendars. Wants to buy *Locos of the Southern Pac.* by G. M. Best; *Highball* by Beebe; *Highliners* by Beebe; *Iron Horses* by Alexander.

Reader's Choice Coupon

Stories, features and departments I liked best in the March issue are:

1. .....
2. .....
3. .....
4. .....
5. .....
6. .....

Best photo on page .....

Name .....

Occupation .....

Address .....

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Railroad Magazine, 205 East 42nd Street, New York City 17.

Railroad Camera Club

(*) RICHARD TESCH, 6853 North West Hy., Chicago 31, Ill., wants size 116 negs. Fort Collins, Colo. st. cars. Will buy or trade 3 CSL negs. Also negs. of Cleveland.

C. EDWIN LEWIS, 255 Highland Ave., Downingtown, Pa., will sell at auction sectionally entire collection over 2000 old, rare tts. and emp. tts. of U. S., Canadian steam, elec. roads. Send self-addressed stamped env. for descriptive list.

* * *

Model Trading Post

ROGER ANDERSEN, 524 Whipple St., Eau Claire, Wis., will sell compl. *Lionel* O27 outfit at discount. All eqpmt. '47 to '50, excell. cond. 1c post card for list, prices

TED GAY, 156 Van Buren Ave., Teaneck, N. J., will sell HO-gage eqpmt. incl. brand new AF *Hudson*, below cost. Will sell 2 *Hudsons*, 6 cars, power unit, small layout, bldgs., $60.

KARL DAVIS, Rt. 3, Box 438, Vancouver, Wash., will sell, trade U. S., foreign postage stamps for all *Lionel* O-gage eqpmt.

E. E DAWSON, Box 42, Hico, Tex., will trade electrified switch lamp abandoned Tonopah and Goldfield RR of Calif.; 1 ea. *Orfutt's* and *Williams Transcontinental RR Guides* 1870s for all makes and types O gage 3-rail eqpmt.

(R) M. J. KELSEY, 48 Cherry Lane, West Haven 16, Conn., has *Railroad Magazines* compl. Jan. '37 to Dec. '50 plus 10 misc. older issues, all good cond. with covers. Will trade for std. gage tinplate eqpmt.

CHARLES LANICK, Box 515, Avella, Pa., has *Modern Morecraft Erector Set* less motor, used once. Builds drawbridges, etc. Will trade for HO kits. Erector set is in 2x13x24 wooden chest.

JERRY McINTEE, 1315 Genesee Bldg., Buffalo 2, N. Y., will sell or trade much *Lionel*, scale O-gage, most all new. Send for list.

HARVEY ROE, 68 Lake Ave., Tarrytown, N. Y., will sell Lionel std.-gage locos, cars. List for stamp.

GUS ROTH, 39 Willets Rd., Harrison, N. Y., selling std. gage locos, cars, etc.; 00-gage new *Lionel* frts. List for stamp.

JOHN H. ROUGEAU, Box 71, Bridgeboro, N. J., wants Lionel locos, tenders, 225E, 229E, 0 gage; also broken 700E, 763E *Hudson* and tender for parts. State price.

FRED J SCHEIBLE, 1214 N. Howe St., Chicago 10, Ill., wishes to sell S-gage, *Miller* single motor switcher, $25.; new *Nord Mikado*, $30. (needs little work) 4617 new UP pass. AF set compl. $40.; 332 UP *AC* converted, $22.; 322 *Hudson*, $15.; also cars, accessories. Send for list.

WM SCHWARTZ, Jr., 51 So. Kendall St., Battle Creek, Mich., will sell HO-gage RR eqpmt., bargain prices or trade for postage stamp collec. List for stamp.

ALLEN A. SHARP, 100 Shennecossett Pkwy., Groton, Conn., will trade 8 well-built HO-gage frt. cars, incl. caboose for new Lindsay Diesel switcher kit or built-up.

BEN SMITH, 265 Tompkins Ave., Brooklyn 16, N. Y., has *Lionel* locos 700E, 763E, 225E, 227E, PRR 0-6-0; 700, 2800-series *Lionel* frts., 072 eqpmt.; several *Lionel* std. gage locos, cars, switches, etc.; motorized *Lionel* trolley cars.

Flagstops

ANNIVERSARY. New York Society of Model Engineers will celebrate its 25th anniversary at its annual exhibition February 9-25 in Lackawanna Terminal, Hoboken, N. J. During the 17-day period the society's terminal headquarters will be open weekdays from 5:30 p.m. to 10 p.m.; Saturdays, Sundays and holidays from 1 p.m. to 10 p.m. President Clark H. Pool Jr. invites model builders to send their best handiwork to the exhibition for entry in the model contest. Besides a Certificate of Merit the builders of prize-winning models will receive cash awards: $25 for best model, open to all classes; $10 to each class winner; $5 to each Honorable Mention. All models entered in the exhibition will be protected by insurance while in the society's quarters. In operation during the exhibition will be the enlarged Union Connecting Railroad, on which all trackwork except the terminal has been completed. Admission charge for adults is 35 cents, for children 20 cents, both tax-included.

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EARNED TWO NEW CARS ... and as much as $120.00 in one week
That's the exceptionally fine record of Chas. Mills with the famous Wilknit hosiery line. Offer of New Chevrolet as a bonus open to EVERYONE. Send name for facts FREE.
SEND NO MONEY ... Just Hose Size
When you send for Selling Outfit, I also send your choice of Nylons or Socks for your personal use. Don't lose a minute. Rush name on penny postcard for full money-making facts on Sensational Sales Kit. Send hose size, too. Lowell Wilkin, WILKNIT HOSIERY CO., 5795 Midway, Greenfield, Ohio

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45 PHOTOS show exactly where to put your fingers
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Now let Bob West, radio's favorite guitar player, show you how! Most "Courses" have only 6 or 8 pictures—but Bob's new method has 45 actual photographs! It not only teaches but shows exactly where and how to place your fingers, etc. Most others offer a few songs—Bob provides 101!—chosen for their radio popularity so you can sing and play right along with your favorite radio program or records!
SEND NO MONEY: Just send name and address to Bob West and pay postman $1.69 plus COD and postage. Start playing beautiful chords the very first day. Be playing beautiful music in two weeks or get your money back.
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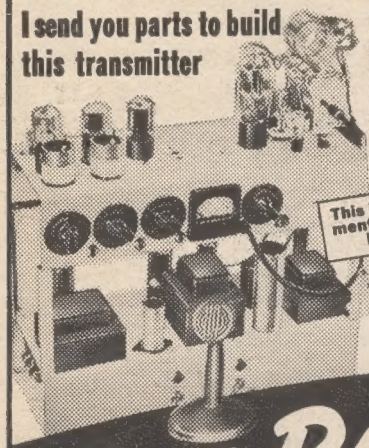
You Practice COMMUNICATIONS

I send you parts to build this transmitter

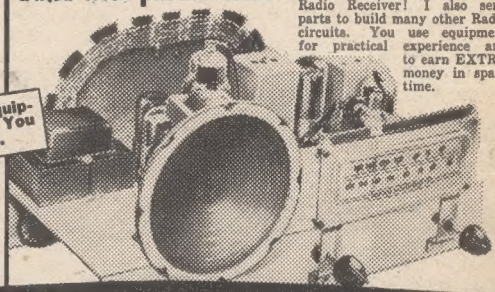


As part of my Communications Course you build this low power broadcasting transmitter, learn how to put a station "on the air," perform procedures demanded of Broadcast Station operators, make many tests.

This is just part of the equipment my students build. You keep all parts I send.

You Practice Radio SERVICING

on this modern radio you build with parts I send



As part of my Servicing Course, I send you the speaker, tubes, chassis, transformer, loop antenna, EVERYTHING you need to build this modern, powerful Radio Receiver! I also send parts to build many other Radio circuits. You use equipment for practical experience and to earn EXTRA money in spare time.

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New, special TV kits furnished to build high-definition SCOPE . . . RF OSCILLATOR with flyback power supply . . . complete TV set . . . many other units. You see pulse, trapezoidal, saw-tooth wave forms. Get valuable PRACTICAL EXPERIENCE locating and correcting TV troubles. Mail coupon for facts and pictures.

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J. E. SMITH, President, National Radio Institute

Do you want good pay, a job with a bright future and security? Would you like to have a profitable shop or store of your own? If so, find out how you can realize your ambition in the fast growing, prosperous RADIO-TELEVISION industry. Even without Television, the industry is bigger than ever before. 90 million home and auto Radios, 3100 Broadcasting Stations, expanding use of Aviation and Police Radio, Micro-wave Relay, Two-way Radio for buses, taxis, etc., are making opportunities for Servicing and Communications Technicians and FCC-Licensed Operators.

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Keep your job while training. Hundreds of successful RADIO-TELEVISION TECHNICIANS I trained had no previous experience, some only a grammar school education. Learn Radio-Television principles from illustrated lessons. Get PRACTICAL EXPERIENCE—build valuable multitester—experiment with circuits common to Radio and Television. Keep all equipment. Many students make $5, $10 extra a week fixing neighbors' Radios in spare time. SPECIAL BOOKLETS start teaching you the day you enroll.

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Send now for my FREE DOUBLE OFFER. You get actual Servicing lesson to show you how you learn at home. Also my 64-page book, "How to Be a Success in Radio-Television." Read what my graduates are doing, earning; see equipment you practice with at home. Send coupon in envelope or paste on postal. J. E. SMITH, President, Dept. **1CR1**, National Radio Institute, Washington 9, D. C. **Our 38th Year.**

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"When halfway through the NRI course, I made $5 to $8 a week fixing sets in my spare time. Am now selling and installing Television sets and antennas."—E. J. STREITENBERGER, New Boston, O.

"My first job was operator with KDLR, obtained for me by your Graduate Service Dept. I am now Chief Engineer of Police Radio Station WQOX. I never hesitate to endorse NRI."—T. S. NORTON, Hamilton, Ohio.

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